

QT 200 H847 1878

07410900R



NLM 05050793 1

NATIONAL LIBRARY OF MEDICINE

LIBRARY OF MEDICINE

U.S. Department of



Bethesda, Md.

NATIONAL LIBRARY OF MEDICINE

U.S. Department of



Bethesda, Md.

NATIONAL LIBRARY OF MEDICINE

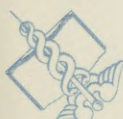
U.S. Department of



Bethesda, Md.

NATIONAL LIBRARY OF MEDICINE

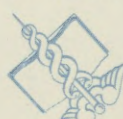
Health, Education,



and Welfare, Public

NATIONAL LIBRARY OF MEDICINE

Health, Education,



and Welfare, Public

NATIONAL LIBRARY OF MEDICINE

Health, Education,



and Welfare, Public

LIBRARY OF MEDICINE

U.S. Department of



Bethesda, Md.

NATIONAL LIBRARY OF MEDICINE

Health, Education,



and Welfare, Public

NATIONAL LIBRARY OF MEDICINE

Health, Education,



and Welfare, Public

NATIONAL LIBRARY OF MEDICINE

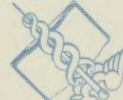
Health, Education,



and Welfare, Public

NATIONAL LIBRARY OF MEDICINE

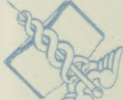
Health, Education,



and Welfare, Public

NATIONAL LIBRARY OF MEDICINE

Health, Education,



and Welfare, Public

LIBRARY OF MEDICINE

U.S. Department of



Bethesda, Md.

NATIONAL LIBRARY OF MEDICINE

Health, Education,



and Welfare, Public

NATIONAL LIBRARY OF MEDICINE

Health, Education,



and Welfare, Public

NATIONAL LIBRARY OF MEDICINE

Health, Education,



and Welfare, Public

NATIONAL LIBRARY OF MEDICINE

Health, Education,



and Welfare, Public

NATIONAL LIBRARY OF MEDICINE

Health, Education,



and Welfare, Public

LIBRARY OF MEDICINE

U.S. Department of



Bethesda, Md.

NATIONAL LIBRARY OF MEDICINE

Health, Education,



and Welfare, Public

NATIONAL LIBRARY OF MEDICINE

Health, Education,



and Welfare, Public

NATIONAL LIBRARY OF MEDICINE

Health, Education,



and Welfare, Public

NATIONAL LIBRARY OF MEDICINE

Health, Education,



and Welfare, Public

NATIONAL LIBRARY OF MEDICINE

Health, Education,



and Welfare, Public



HOW TO BE
121
HEALTHY.

A
COLLECTION

FROM THE
WRITINGS AND EXPERIENCE OF MANY EMINENT PHYSICIANS,
ON
PREVENTING DISEASE, PRESERVING YOUTH AND BEAUTY,
PROLONGING LIFE, AND PRODUCING A CHEER-
FUL, HAPPY OLD AGE.

"In the multitude of counselors there is safety."—PROV. 11:14.



CLEVELAND, O.:
A. J. CAMPBELL.
1878.

Annex

QT

200

H 847

1878

Entered, according to Act of Congress, in the year 1878, by

A. J. CAMPBELL,

in the office of the Librarian of Congress at Washington.

0221

CONTENTS.

The Importance of Good Health, 7—The Influence of Occupation on Health, 20—Moral Influences affecting Health, 31—Losing time in getting Health, 36—Health of Business Men, 41—Public Health is Public Wealth, 47—The Gospel of Health, 53—Secrets of Health, 59—Rules for Health, 74.

Our Habits, 83—Cultivate Cheerfulness, 85—Address to young Men, 87—Fast Living, 96.

Advice to Young Ladies, 103—The Health of Our Girls, 109—School Room Diseases, 113—The Education of our Daughters, 116—The Physical Training of Girls, 119—Recklessness of Health, 122—The Cause of an Early Loss of Beauty, 125—Physical Degeneracy of American Women, 128—How many Wives Fade, 132.

What Folks are Made of, 135—Statistics of Human Life, 138—Wonders of Man, 143.

The Length of Human Life, 149—Longevity, 157—The Commencement of Old Age, 171—How to Lengthen Life, 176—Art of Long Living, 183.

- Physical Culture, 192—Physical Education, 198—Physical Exercise, 201—Mental and Physical Exercise, 210—Walking and its Uses, 217—How to Walk Well, 224—Riding Horseback, 231—Gymnastics, 234—Advice to Skaters, 240—Swimming, 245—The Abuse of Physical Exercise, 251.
- Out-of-Door Life, 258—Advantage of Activity, 263—Labor and Long Life, 267—On Work, Heat and Health, 271—Brain Work, 275—The Health and Longevity of Brain Workers, 285.
- Recreation, 290—The Necessity of Taking Rest, 294—How to Rest, 303—The Art of Sitting Properly, 310.
- The Atmosphere, 314—The Value of Pure Air, 321—Night Air, 338.
- The Importance of Light, 343—Effects of Color on Health and Disease, 350—The Value of Sunshine, 355—Sun Baths, 365—Sunshine the Best Medicine, 370.
- The Weather, 376—How to Keep Cool, 384—How to be Comfortable in Cold Weather, 391.
- Warming Houses, 396—Damp Houses, 404—Cellars and Drains, 411.
- Ventilation, 418—How to Ventilate with a Common Stove, 427—Church Ventilation, 434.
- Cleanliness, 441—The Skin and Bathing, 448—Hints on Bathing, 453—Rules for Bathing, 458—Bathing Children, 464.
- Importance of Sleep, 468—Amount of Sleep Required, 474—Sleeplessness, 479—How to Secure Sleep, 483—Position in Sleeping, 498—After Dinner Naps, 502—Sleeping Together, 504—Sleep for Brain Workers, 508.
- Sleeping Rooms, 513—Beds and Bedding, 517—Beds and Bedding for the Sick, 525—The Spare Bed, 528.

Evil Habits of Dress, 530—Woman's Dress, 537—Tight Lacing, 543—Mothers and Fashion, 549—Underclothes, 553—Dress of our Extremities, 559—How to Dress the Feet, 562—Dress of Throat, Head and Hands, 571—Children's Clothing, 575—Damp and Wet Clothes, 581—Wall Papers and Disease, 583.

The Stomach, 588—What People Eat, 592—What Should We Eat, 598—Regular Eating, 605—Food and Appetite, 611—Dieting, 617—Diet and Health, 621—Mastication of Food, 630—Pleasure in Eating Slowly, 635—How much Shall We Eat, 640—A Peep into a Living Man's Stomach, 646.

Effects of Thirst, 654—Drinking-Water, 657—Drinking Too Much, 662—Impure Water, 669—Iced Water, 673—Summer Drinks, 676.

Mothers and Infants, 679—Care of Infants, 687—Care of Infants in Hot Weather, 694—Care of Infants at Night, 699—Opiates for Infants, 705—Food for Infants and Children, 709—Dress for Children, 719—Exercise for Children, 730—Keeping Children Warm, 739.

The Sick Room, 744—Rules for the Sick Room, 754—Nursing the Sick, 758—Family Nursing, 770—Food and Drinks for the Sick, 778.

THE IMPORTANCE OF GOOD HEALTH.

The first and greatest blessing that God bestows upon a person is life. This is the basis of all other blessings. Without it, no other blessing could be enjoyed. Hence, the loss of life is the greatest punishment that can be inflicted upon a man. "All that a man hath will he give for his life." When life is at stake, everything sinks into insignificance in comparison with that.

Next to life the greatest physical blessing a man can enjoy is good health. Without health, even life itself becomes useless, and sometimes even worse than useless, even a burden and a curse. There are those all through the land who could bear testimony to this. A man may be possessed of talent, of wealth, of friends, and of everything that is desirable to make him happy and useful; yet if he is deprived of health, all these are of no value to him. He would give them all for sound health.

Not only does sickness destroy a person's happiness, but it destroys his usefulness. Here is an industrious man, a father of a large family. They are dependent upon his labors for support. He loses his health and becomes a confirmed invalid, unable to do anything. Not only must he suffer, but his family must suffer on his account. He does not simply fail to render them help, but he becomes a burden upon their hands.

Here is a mother with several small children dependent upon her for care, instruction, and proper training. She loses her health, and is confined to her bed for months and years. She cannot perform the duties of a mother

to those needy children. They suffer not only now, but all through life, for the aid she should have given them.

Here is an able and useful minister. He goes out to save souls. His services are much needed. The church cannot afford to spare him; but he breaks down, loses his health, and is unable to labor farther in the Master's service. He suffers, the church suffers, souls suffer, and the devil triumphs. So we might continue these illustrations in any and all the walks of life.

Go to that invalid who has been carried in a chair or lain upon a bed for years, and ask him the value of good health. Its price cannot be told. Gold and silver cannot buy it. Houses and lands cannot purchase it. Our simple salutations show how important we regard it. When we meet a friend, the first sentence is, "How do you do?" "Are you well?" We regard this as the most important question we can ask. Everything depends upon it. God, in his holy word, has attached the same importance to good health that we do.

The apostle John writes to Gaius as follows: "Beloved, I wish above all things that thou mayest prosper and be in health, even as thy soul prospereth." 3 John 2: 2. Next to the prosperity of his soul, John wished that he might prosper in health. This being inspired by the Holy Spirit, shows what the mind of the Lord is with regard to the health of his servants. Paul writes to Timothy thus: "For God hath not given us the spirit of fear; but of power, and of love, and of a sound mind." 2 Tim. 1: 7. God wishes his servants to have sound minds. Now everybody knows that a sound mind can only be possessed in a sound body. The health of the body affects the health of the mind.

Take the dyspeptic as an illustration. He is unavoid-

ably fretful and peevish, sad and gloomy. His mind is affected by his body. To the ancient Israelites, God said, "I will take sickness away from the midst of thee." Ex. 23:25. This he promises as one of the greatest blessings they might enjoy by obedience. Isaiah, in exhorting the people, says: "Then shall thy light break forth as the morning, and thine health shall spring forth speedily." Isa. 58:8. When Jesus came into the world and went about doing good, a large share of his ministry was spent in "healing all manner of sickness, and all manner of disease among the people." Matt. 4:23. When he sent out the disciples, he told them to go and heal the sick.

All these facts show that the Lord regards sickness as a great calamity, one much to be avoided. Hence, if we would co-operate with him, we should carefully regard and preserve our health.

We all readily agree that no man has the right to destroy his own life, commit suicide. If a man deliberately cuts his own throat, or hangs himself, everybody condemns him for it; and God will bring him to account for it. But is not a man just as much bound to preserve his health as his life? Certainly he is. Life is useless without it. Where is the difference in the crime, whether a man destroys his life in one minute, or in ten years? Is not the crime the same in the sight of God? We think so.

But how is life or health destroyed? Simply by violating the laws of our being, which God has placed us amenable to. If we do this suddenly and violently, it ends in immediate death. If we do it more moderately and gradually, the final end is the same. From all these facts, which no one will deny, we draw the plain conclu-

sion: Every man is morally bound by his duty to his God, to himself, to his family, and to community, to carefully protect and preserve both his life and his health, to the best of his ability. God will hold him accountable if he does not.

When we talk to people about the injurious effects of certain articles of diet and modes of living, they frequently tell us that they don't care, they mean to live well and enjoy themselves while they do live. They do not propose to give up the use of things which taste good to them, even if they do not have good health by using them, or if their lives are shortened thereby. Nor do they wish to inform themselves as to what is for their health, or what is not. They do not seem to see any duty in the matter, either one way or the other. Professed Christians talk in this way. But this certainly is a great mistake if the above facts are true.

We think we are warranted in drawing the conclusion that every one is morally bound to inform himself, as far as practicable, concerning the laws of life and health, under which his Creator has placed him, and then conscientiously obey them. This life is given to us for labor; but we cannot do this without life and health. If we destroy these, we defeat the object of our creation. God will hold us accountable. Life is short at the longest, and our strength is feeble. Our labor demands all the strength we can command. Hence we believe that every Christian should be a conscientious health reformer.

Next to the practice of personal piety should stand the duty of preserving our health. Indeed, this is by no means to be considered as separate from the proper service of the Creator. For the preservation of health is the result of strict temperance in all our habits of life,

and temperance is inculcated in the New Testament as a Christian duty. Certainly it is a shame to have poor health when it is caused by our own misconduct; and, to speak the truth, a very large part of all the sickness prevailing in the world is wholly, or in part, to be attributed to the wrong conduct of the persons thus afflicted.

Death is the unavoidable lot of the sons of men; for our race is mortal, and cannot escape the execution of the sentence which has been passed upon it. But it need not be the case, as it is, that men should not live out half their days. The machine of life ought to run with a steady motion till it runs down. It is the most wonderful of machines: and the difficulties under which it labors are not the fault of its Creator, but mostly the result of the bad conduct of each person.

The larger class of diseases is caused by the abuse of the stomach. Indigestible food, and this, too, taken at all hours of the day, has broken down many a strong constitution, whose owner attributed the ruin to God's mysterious providence. Let us thank God that we have learned the real cause of the evil, and then as a religious duty let us eat and drink in accordance with the laws of nature.

And how do the slaves of fashion ruin their health by their conduct in everything pertaining to life! Their styles of dress, their late hours, their unwholesome food, their violation of the plainest laws of their being, all unite to bring upon them the destruction of their health. We cannot prevent this conduct on their part, but we are not obliged to imitate it. We must dare to do right. Because fashion prescribes a course of life which reason, and experience, and conscience condemn, we must take our stand for the right and in resistance of the wrong.

To ruin our health, that we may follow fashion, is to be a fool and a sinner all under one.

It is our duty to learn the laws of our being, in order that we may obey them. And it is our business to preserve our health, that we may be of use to our fellow-men; and that we may honor God by doing good while we live. It is a strange delusion which exists in the minds of some, that real piety is consistent only with poor health. We cannot, indeed, deny that many of the excellent of the earth have been the children of affliction; but we are fully satisfied that vigorous health devoted to noble purposes is what will best enable us to do the work of God and of humanity.

To possess health is to have in our hands the full measure of the strength of our being. This is just what God saw that we needed, and is precisely what he designed that we should have. It is a noble ambition that impels us to preserve our health when our object at heart is to do all that lies in our power to honor God and to benefit mankind.

“Know thyself,” the reciprocal relations of body and mind, the best means to preserve them intact, and to give both the highest capacities for health, endurance, and usefulness, are the first duties, and the foundation of the education and culture of every human being. Parents and educators, who develop the race; Christian workers and preachers who mould the morals; electors and statesmen who regulate and energize the nation; all know and feel “the great study of mankind is man.”

The body has no intrinsic value in itself, but connected with mind gives it infinite worth. Their reciprocal relations are incessant, innumerable and all-controlling. The mind continually modifies the condition of the body;

the body ever varies the state and capabilities of the mind. These two conjoined, by infinite wisdom, form the wonderful compound called man. Not the body alone; not the mind alone, but both existing and acting in complete, beautiful, and harmonious union, constitute that true and noble manhood and womanhood—the perfection of human existence.

A sudden change in the bodily condition often produces an effect so great and material upon the mind as to appear almost a miracle. A sudden mental shock may extinguish the bodily vitality at any moment. The body is the mind's palace; darken its windows and it becomes a dismal prison, and the inmate is often a worthless prisoner for life. The body is the mind's scalpel; if in good order—sharpened—it cuts keenly, if blunted, it only bruises and disfigures. It is the mind's reflector; if bright, it flashes day; if dimmed or defaced it may not diffuse twilight. It is the mind's servant; if healthy and energetic, it acts promptly and executes nobly; if crippled, it is powerless for good.

The importance of developing and educating the body and mind alike and together, as the main hope of true manhood, on which attainment rests both Church and State, is no new or modern idea. Milton, Locke, Bacon, and others, in England; Jahn, Ackerman, Frank, and Saltzman, in Germany; Tirsot, Rosseau, and Lond, in France; Fellenberg, in Switzerland; Dr. Rush, Profs. Lindley, Hitchcock, Mitchell, Harris, Mann, Hon. J. Q. Adams, of this, and many more in other countries, have all insisted and pressed home this subject to the attention of the people, continually, the last two hundred years. Yet it is sad to know how few realize and act in accordance with a correct appreciation of it. To the

mind we attach infinite value, and justly, too, but it is of little worth without a healthy and vigorous body. Can a man think without a healthy brain? Can he feel correctly with nerves unstrung? Can he move promptly without muscular force? If not, common sense dictates to look well to the condition of the brain, nerves, and muscles. "An unsound body is incompatible with a sound mind," was a maxim of Plato, which, like much of his philosophy, has been approved and lauded by Christians and Pagans alike. Excesses in food, drink, exercise, labor, abstinence, fatigue, a lack of due recreation, sudden changes, a want of pure air and sunshine, all produce endless diversities in the condition of the mind.

When we make mental or moral efforts over a full meal, or when over stimulated, we cease to wonder why Plato located the soul in the stomach. Ammonia held under the nose, or water dashed on the face of one in a swoon, awakens the mind from unconsciousness. A slight impression made upon a nerve, a sudden twinge of pain, often breaks a chain of thought, tossing the mind in tumult. Let a peculiar vibration quiver upon the organs of hearing, and a wild emotion passes over the soul.

"By turns we feel the glowing mind,
Disturbed, delighted, raised, refined."

Strike up the "Marseillaise" in the streets of a French city, and the population are lashed into a fury. Sing the "Ranz des Vaches" to Swiss soldiers, and they gush into tears. Any one who can think with a gnat in the eye, or reason with the nerve of a tooth twinging, or when nauseated, or when breathing is oppressed—those who can give wing to the imagination when shivering with cold, or oppressed with heat, when worn down with toil, can bear off the palm and claim a victory over the

common lot of humanity. At different periods of life the mind waxes and wanes with the body; in childhood, prattling and playful; in youth cheerful and giddy, full of daring, quick to see and keen to feel; in manhood, firm, courageous, heroic and persistent; old age, desponding, timid, perceptions dim, and emotions languid. When the blood circulates with activity, the coward rises into a hero. But when the circulation of the blood is depressed—flowing feebly along, the very hero sinks into a coward.

Equally sudden and effective are the changes produced by the varied states of the mind upon the body. The expression of the face is mind visible. The emotion of shame flushes the face; fear blanches it, joy illuminates it; surprise electrifies all the nerves, and sets the whole body aglow; delirium gives the face an expression of rage, infuses gigantic energy, and often into those before helpless with wasting disease; the mind's volition commands, and hundreds of muscles spring to execute. Bad news weakens the force of the heart's action, oppresses the breathing, destroys appetite, stops digestion, and partially suspends every bodily function; relaxes the skin and allows a cold sweat to ooze out upon its whole surface. The mind's suffering may be so intense, in the highly intelligent and refined, as to open the pores and to allow globules of blood to exude, and thus actually "sweat blood." Hence Plato was accustomed to say "all of the diseases of the body proceed from the soul;" he considering the mind and soul synonymous terms. His great sagacity and close observation convinced him that the mind controls the functions and welfare of the body to almost an unlimited extent; which the interesting and important sciences of anatomy, phys-

iology, and the profound study of pathology, both medical and surgical, with their great modern facilities to arrive at the truth, also confirm.

Overwhelming emotions of the mind often suspend bodily vitality instantly. Chilo, Diogones, and Sophocles died of joy at the Egean games. The news of defeat killed Philip V. One of the popes died of a ludicrous emotion, on seeing his pet monkey robed in pontificals, and occupying the chair of state. Muly Molock was carried upon the field of battle in a partially paralyzed state; upon seeing his army give way he leaped from his litter; rallied his panic stricken troops, rolled back the tide of battle, shouted victory! and died instantly. Orators have expired suddenly, either in impassioned bursts of eloquence, or when the deep emotion which gave rise to them had suddenly subsided. Messrs. Pinkney, Emmet, E. Webster, and many others are examples.

Lagrange died when he heard that the musical prize for which he contended was adjudged to another. Mr. Hill, of New York, apprehended for theft, who was tried and convicted through mistaken identity, and the mental agony of which induced such a rush to the head, that the blood gushed from his nostrils and destroyed life.

Climate, in all its extremes of rigor and oppression, can be borne with impunity by a well-balanced mind and body, when directed by a wise intelligence, as proven by Bayard Taylor and many other travelers. But compare the uncultivated natives—the timid, indolent, enervated, and irritable of the Torrid, with the phlegmatic and stupid ones of the Frigid Zone. Consider the fact that the world's civilization and culture is nearly all included within the Temperate Zone. See how the state of our minds are modified by the different periods of the

day, sudden changes of the weather and seasons of the year. The largest number of suicides occur during rainy and gloomy weather or in the night time.

Daily experience demonstrates that every pernicious habit lowers the powers of the mind and body. Whatever debases the one injures the other, and what exalts the one elevates and enobles the other. Manifestly a scrupulous care of the body and mind alike and together is the foundation and hope of health, happiness and usefulness; the only means through which to maintain life, accidents excepted, to its proper limits. In this manner our own destiny is placed under our own supervision, and we are responsible for the momentous results. In view of this subject the truth comes home to us—Gal. vi. 7: “Be not deceived; God is not mocked! for whatsoever a man soweth, that shall he also reap.”

Ordinarily, people know as little about their physical natures and the laws governing them, as about any subject to which their attention may be called. Ask the mass of the people why they eat, drink, sleep, breathe, exercise, perspire, or perform any other act pertaining to the welfare of the body, and but one answer will be received, viz: “that I may live.” But *how* each of these acts conduces to health, is as mysterious to them as anything connected with created things. They know how to care for horses and cattle, and in their breeding how to improve them; they have re-modeled the horse a hundred times—giving him increased muscle and durability, or changed him to a gray-hound form for the track. In the vegetable world like changes and improvements are made at will. But when we come to the human subject, such shameful ignorance is manifested as would lead the intelligent observer to doubt the sanity

of the human race. Such negligence of God's crowning work—a being created in His own image—is inexcusable.

What now is the result of this ignorance of physical law? Disease and misery. Who would attempt to manage and keep in repair a machine of which he was so perfectly ignorant? And yet with this most complicated piece of machinery, upon the action of which so much depends, we are utterly reckless. The doleful effect of this ignorance must bear some relation to the cause. Now look, if you will, at the great mass of invalids in our country. Say nothing of those confined in the hospitals, asylums, alms-houses, and on beds of sickness, nine-tenths of our people are sick—absolutely diseased. A large portion of humanity die in infancy or childhood. What does all this mean? It means that God's immutable laws have been violated. (The laws of nature are as much the laws of God as the Decalogue.) "Sin is the transgression of law," and is followed by death as the penalty. In view, then, of the enormous amount of disease and misery and premature death, we conclude that a fearful sin has been committed in the violation of physiological law. An obedience to this law, and the resulting health, then, is a *duty*.

Some may suppose that physical maladies are the only results of a disobedience of physical law. But this is a great mistake. Man was not made in vain; he was created for some great and noble purpose, for the accomplishment of which he was placed in the possession of a physical system. Now, if he violates the laws of that system, by which he shortens its natural period of existence, thereby thwarting the designs of his Creator, will he not be held morally accountable? Behold the nameless beauty of this grand mechanism; the in-

tricate and beautiful structure, and the perfect adaptability of all its parts to the end for which they were created; the perfect harmony with which all parts perform their several functions; and finally the exalted function of manifesting mind, and controlling its actions, and tell me if this grand result of Creative Intelligence is to be maimed and blemished, disfigured and abused, without bringing moral punishment on its possessor.

We know nothing of mentality only as it is manifested through the physical. Matter is the only medium through which spirit makes itself known. Electricity manifests its power only through some conducting medium, as the telegraphic apparatus, and so long as this is in good condition—working smoothly and harmoniously—its powers are beautifully and accurately manifested; but when this machine is once disordered, the manifestations are correspondingly deranged. So with the human organism; while the body is healthy and vigorous the mind's actions are comparatively strong and healthy; and *vice versa*. It is so of necessity; it cannot be otherwise. Nor is this all, for with debility comes the liability to reversion of actions. Withdraw the necessary support from the mind, and it not only loses power, but is changed in quality of action.

So far, then, as our own actions can effect it, is it not our imperative duty to maintain health? Health is the key-stone to success in any direction. From the laborer, who toils by the day to procure a sustenance, through all the various trades and professions in life, to him who pleads the claims of Jesus to a dying world, the man who has imperfect health is imperfectly performing his mission—is not thoroughly furnished to good works.

And when we consider that all these physical mala-

dies, blemishes and disorders are to be transmitted to our posterity—that they are to be handed down from one generation to another to the end of time, can we quietly move on, cursing our own and all coming ages? Who can comprehend the crushing effect of our sinfulness, or measure the extent of its ravages? “Therefore, O man, know that health is both a privilege and bounden duty, and both learn and fulfill its conditions.”

THE INFLUENCE OF OCCUPATION ON HEALTH.

Man, intended and qualified by his physical structure and intellectual powers to rule over all the kingdoms of life, is the only true cosmopolite. Every climate has its peculiar types of life developed wholly or in part within its borders. The fauna of the Arctic regions are never found within the borders of a more temperate zone, nor do the inhabitants of the tropics stray beyond the boundaries which nature has ordained for them. The birds and fishes, it is true, are migratory; but they follow the changing seasons. Man is the only being who adapts himself with equal facility to the rigors of an Arctic winter and the burning heat of an equatorial sun. This power of human adaptability is not confined to the matter of climate; it applies equally to our occupations, and in all our studies concerning the physical laws which regulate health, the fact must not be lost sight of that man is as truly intended to be a social and intellectual, as he is to be merely a geographical cosmopolite. In observing the influences of climate, we notice at once that men are subject to a law of limitation. While the species is one, it is divided into races, each possessing its

own physical peculiarities governed by the climate which it occupies. The same is true in regard to occupation. While the different employments tend to develop or deteriorate the various qualities naturally belonging to man, certain employments, just like certain climates, especially if continued through a series of generations, produce the highest type of manhood, and however far the intellectual attainments of men may remove them from a state of nature, it by no means follows that the laws of physical health or development are thereby violated. We make these suggestions in order to show that any investigation of the health of the different occupations must not be conducted on a purely physical basis; the mind is as much concerned as the body in hygienic laws. Sanitary science is of very modern growth, and as was observed in a recent report of the Board of Health, we are probably indebted to Dr. Farr, the English Registrar General, more than to any other man for our present knowledge concerning it. Much has been written in America, as well as abroad, concerning the different occupations, but reliable facts and figures have scarcely been reached as yet in our own country. The attention of American statisticians has been chiefly confined to the sickness produced by climate and social conditions. Many very interesting facts, however, have resulted from the observations in Europe, where, the population being more compact, a better opportunity is furnished to eliminate the influences of location, and study the different effects of employment by themselves.

Labor naturally divides itself into that which is chiefly manual and that which is intellectual. We propose to look at each of these classes by itself. Of twelve classes of persons observed by Dr. Farr, the health of each esti-

mated according to the proportion that died during the period of middle life, was as follows:

	Died out of every 1000.
Farmers,	12
Shoemakers,	15
Weavers,	15
Grocers,	16
Tailors,	17
Blacksmiths,	17
Carpenters,	17
Laborers,	17
Miners,	20
Bakers,	21
Butchers,	23
Keepers of Taverns and Alehouses,	28

Dr. Farr remarks on this list, that the health of the farmer over the laborer is considerable at every age after 35, but between the ages of 25 and 35 it is somewhat less. But that at every period of life the mortality of tavern-keepers is in excess of all others.

Mr. Milne furnishes the statistics of eight English towns from which it appears that of three classes observed, the gentry, the tradesmen, and the laborers, the first enjoyed in all the towns an average length of life over the second of from 7 to 19 years, and these again over the third of from 3 to 17 years. In a report prepared several years since by order of the Massachusetts Legislature, on the health of the different classes in that State, the farmers again head the list of manual occupations, enjoying on the average 64 years, while the butchers, blacksmiths, hatters, coopers, carpenters, shipwrights, and masons hold the second place, enjoying, one with another, from 47 to 58 years. After these come the jewelers, machinists, shoemakers, tailors, and painters, ranging from 36 to 44 years. The operatives and clerks have but about 34 years among them. This is perhaps

in the main as complete and condensed a summary as we yet possess of the effect of the different trades on American life. Superintendent Kennedy, of the Commissioners at Washington, called attention in his last report to the importance of gathering reliable statistics on this point, but it will readily be perceived that all statistics must be collected with great caution where the different classes predominate in different sections of the country; for instance, in the statistics of Mr. Milne, quoted above, the health of the gentry in those towns which were unfavorable to life, was inferior to that of the laborer in the more healthy town. Mr. Lombard gives as the result of his observations substantially the same facts; the agriculturists enjoying 60 years of life; the masons and butchers, 54 years; carpenters, 49 years; painters, millers, and bakers, 43; and stone-cutters, 34 years. Now, in view of these figures which, if we had space, might be substantiated by others, what are the laws which govern these sanitary facts? A German author has well said that cities are the graves of our race, and the truth of his remark has long received a melancholy exemplification in that steady tide of humanity which is constantly setting from the country districts into the neighboring towns to supply the waste of life.

A wide circle of influences unite to make the life of the farmer the most healthy of all the occupations mentioned. Hufeland denominates light, heat, and air, the three celestial gifts which with great propriety may be called the friends and guardian spirits of life. The chemical influence of light on the tissues and functions of plants is well known, but that it plays an equally important part in animal life has not been so generally recognized; here, however, its agency is two-fold, chem-

ical on the system itself, and mental, light being as important to invigorate the mind as the body. Its effect must have been noticed by every one when the sunshine has succeeded a long period of storm, in the fresh elasticity imparted to the whole frame. The wide difference between the air of the town and country, the most important of all the sanitary influences at work, has received of late so much attention on all sides that it is only necessary to allude to it. There are two or three other facts connected with the farmer's life to which we wish to call especial attention. The first is the character of his work. It is calculated more than any other to call into healthy exercise all the bodily functions. So varied is its character that no set of organs are compelled to suffer a constant strain while the others are not exercised; seasons of hard work are followed by days of rest, so that the wear and tear of the system is replenished from month to month. Another fact is the temperance of his diet. It has long since been noticed by physicians that while the American public was loud in its condemnation of excessive drinking, the really more mischievous effects of intemperate eating were passed over in silence. The British agriculturist has often through poverty suffered for want of proper regimen. A few years ago the official returns in that country showed that while the agricultural laborer subsisted on 122 oz. of food weekly, the able-bodied pauper enjoyed 157 oz., and the convict in some cases as high as 300.

But the American farmer is seldom so poor that he can not supply himself with a sufficient quantity of plain and hearty fare. Closely connected with this matter of diet, is his temperance in his general habits of life; he is compelled by his insulation to be eminently domestic,

so that he is not addicted to those unnatural hours or excitements which are the bane of city life. Again, the farmer enjoys a position of comparative independence. If he is compelled to work hard, it is with the assurance that he is less liable than most to the fluctuations of trade; the means of livelihood are always within his reach and his mind is freed from those harrassing cares and privations which are sure to attend periods of financial distress in the cities. Such are a summary, as we think, of the causes of agricultural health. It is plain that the natural laws of life are more closely followed here than among any of the other classes. We have been thus specific in noticing the different advantages enjoyed by the farmer, because it would seem that just in proportion as these different conditions are violated in the other occupations, is their prospect of long life lessened. Turning our attention to the other occupations, we see that the great majority of those engaged in them are inhabitants of the cities and manufacturing towns. Every department of labor here has its peculiar mode of life dependent in part on the circumstances resulting from the work itself and in part on the peculiar influences and associations with which the workman is surrounded; of course, it will always be impossible to separate these externals from the direct effect of occupation. The tenants of the hovels and tenement-houses, and the dark and poisonous alleys will be largely composed of the day laborers, the lowest and most deadly haunts of vice and pleasure will draw their patrons from the same class, so that the measure of health enjoyed by any class must always be the resultant of the work itself, and those habits of life which indirectly result from it. Next after the farmer, rank those trades where active

manual labor engaged in during the stated hours in the open air or in well ventilated shops is united to a degree of skill, which gives some play to mental activity; such are the joiner, the carpenter, the blacksmith, the mason, and the shipwright. In all employments where the natural functions of the bodily organs are interfered with, the standard of health is lowered; the jeweler and the tailor, from their cramped and sedentary employment, tend to the diseases of the chest; the painter, the grinder, and the stone-mason have their lives shortened from the poisonous and irritating materials which they employ, being introduced into the system. The short and sickly life of the operative in the large manufacturing towns is well summed up by Dr. Morgan, an eminent English physician, in a pamphlet warning his countrymen that their race was decaying. He remarks that the factory hand wants physical stamina, and his muscular system is rarely well strung. His pulse tells of want of power in the heart, and its variations are rapid under the least excitement; his feet are cold, his veins prominent, he is given to vertigo, and his lips are blanched and colorless, while the naturally sickly influences of the factory are heightened by the murky mass of noxious vapors and gases that obscure the sun and vitiate the air. These unwholesome conditions of the operative's life are experienced, though not to the same extent, in the American towns as well as in those of Europe, and are aggravated by the mental and physical sufferings produced by periodical stagnations of business. The only other classes of manual employments which we have room to notice, are the lowest forms of labor, where skill and intellectual activity are almost lost sight of. The day laborer and miner are types of this class. Un-

able to select their times or places of work, they are exposed to the inclemencies of the weather, and the influences of unhealthy locality; the former retiring from their toil often to ill-constructed and badly-ventilated rooms, surrounded with filth, in the most sickly localities. The miner, shut out from light and air in the damp atmosphere of the mines, often impregnated with gas, is a proverbially short-lived man. These classes are types of purely physical energy. The nervous activity of the brain is wanting, their enjoyments are the mere gratification of the sensuous appetites, often leading them into the lowest and most destructive dissipations. Fevers, epidemics, and violence seizing on their constitution, broken in middle life, result in sudden death.

Turning now to the second class of employments, those belonging to the brain, we are met by a still more interesting series of facts. Here we meet with man in his intellectual type. We do not look for the development of physical force which will carry him safely over the pitfalls of life—the force is of another kind, but none the less potent. Combe says in his “Constitution of Man,” “there is an additional benefit arising from healthy activity of the brain, which is little known. The brain is the fountain of nervous energy to the whole body.” According as this nervous energy is exercised, it imparts or impairs vitality. In the report to the Massachusetts Legislature, noticed above, it appeared that bank officers and judges were more favored by length of life than even farmers, while clergymen, lawyers, physicians, and merchants ranked with the best of the trades. Teachers, bankers, and musicians ranging with the more unhealthy employments of the painter, the tailor, the shoemaker, and the clerk. These few

facts serve to introduce us to the laws which govern health in this department. Muscular development and constant activity of the body are not needed; such an exercise and diet alone is necessary as shall keep the organs in their normal and healthy condition. Apart from the violation of physical laws, the kind of activity to which the brain is subject, determines the health. The effect of the emotions and passions, when allowed full scope, is to shorten life; the effect of purely intellectual activity is to prolong it just in proportion as that activity is regular, and placid in its character, and allied to studies pertaining to the familiar occupations of men. To illustrate what we mean, we quote the following table from Dr. Madden's "Infirmities of Genius." Natural philosophers attain to the average age of 75; moral philosophers, sculptors, painters, legal and medical authors, 69 to 70; musical composers, 64; novelists and dramatists, 62; poets, 57.

The close alliance between the mind and body causes every unhealthy disturbance of the former to react on the other; depression of spirits arrests the processes of digestion and assimilation; fear and anxiety act upon the heart and respiration, and it would seem that in all excesses of emotion, the nervous energy which nature intended should be produced in the brain and diffused through the system, was produced in excess and wasted by that organ itself. The tranquilizing influence of philosophy and its regulative power over the habits of life are seen in the age to which those engaged in this study attain, while those who, like the novelists, employ more largely the imaginative power, fall far below. The poet revels in the flights of fancy; the unreal, the dream-land is his home; none, as a class, suffer the extremes of

pleasure and pain like him. His mind is a stage on which the emotions are almost constant players, and as a natural result, he falls first from the ranks of genius.

Of the three learned professions, the lawyers are, as a class, probably the most healthy in America. The sick room, the exposure, broken rest, and responsibilities of the medical profession tell heavily on the strength of both body and mind. The clergy, in this country at least, too often feel constrained to lead an unnatural life; their minds are removed from the elastic influences of every-day life by the subject of their study, constant attention directed to a single matter, where the emotional and the imaginative is so largely concerned, combines with confinement, overwork, and ill-ventilated halls, to impair the elasticity of both mind and body, and chronic debility fastens itself on many in early life.

Health is not the special property of the physical or intellectual type of man. So far as employment itself is concerned he may be a cosmopolite, so long as he does no violence to the natural laws of his being. Whatever may be his occupation, the hours of recreation must be employed to repair the particular energies that have been wasted. It is the neglect to do this, to find in the times of absence from the shop and the study a remedy against the threatened disorder, that entails on humanity the multiplied disorders of civilized life.

A very close relation exists between health and occupation; and the more widely a knowledge of the principles of sanitary science is diffused, the more certainly will the health and happiness of our working population be secured. It is always the feeble and unhealthy who are the most dissatisfied with their lot, and clamorous for the reform millennium; the healthy body and satisfied

mind exist together, and a man who has health to enable him to overcome obstacles and make his way in the world, is not likely to be very particular about the roughness of the road.

The influence of occupation on the health is not a subject for the consideration of a single class; for what overwork of body does for those who earn their daily bread in "the sweat of their brow," overstrain of mind effects for those who live by their brains.

Let it ever be borne in mind that whatever may be the specific dangers attaching to particular occupations, there is no disease so deadly as no occupation at all; it is a rust that corrodes, and a canker that corrupts all vital power both of body and mind. The absence of definite purpose in life, and of regulated effort to realize that purpose, is productive of the fatal distemper, of the languid stagnation, of *ennui*, or of the distorted and morbid activeness of hypochondriasis, rendering God's gift of life a burden or torment.

Human beings were never intended for indolence; even in the garden of Eden the first of our race was appointed to dress and to keep it. It is never to be forgotten that labor is a law of our being; and even if there be some penalty involved in the difficulties and dangers attaching to labor, still it is at once man's glory and happiness to surmount and overcome them. A beneficent Creator in imposing a law attaches a blessing to obedience. Disobedience must bring its punishment. Lord Stanley has feelingly and eloquently depicted the miseries affecting those who by their worldly position seem exempted, and hold themselves exempt from the law of labor, and has commiserated those who consume much and produce nothing; production in proportion

to power is the secret of a happy balancing of mind and body.

No one can take even a superficial view of the world in which we live, of the vast and ever unfolding secrets stored within the bosom, and of the marvelous faculties by which man is fitted to discover, develop, and apply those secrets, without feeling that well regulated labor is happiness; that indolence is death; that "labor" is graven with a pen of inspiration over the field of the universe.

MORAL INFLUENCES AFFECTING HEALTH.

The power of mind over matter is great; it is quite beyond calculation; everything which affects the mind must influence in some way the body and the health—every shade of difference in thought and emotion, of hope, fear, joy and sorrow, tells upon the animal economy. Some emotions are tonic and invigorating in their tendency, others depressing and hurtful in effect. Of the former we have hope, joy, love, ambition; and of the latter, anxiety, anger, fear, sorrow, and others. These effects are of common experience; we have felt them whether we were aware of it or not. The greater mortality during epidemics among those who are afraid of being attacked illustrates this principle; and the stories we have heard about a man being killed by being made to believe he was bleeding to death, and of a certain sensitive person being made sick by all his friends—in collusion with each other—telling him he looked sick, and afterward of being cured by an opposite course—these stories, if never true, might have been, and illustrate clearly the truth of our proposition.

The power of mental influences is greater than is often supposed; statistics show some surprising facts in this regard. We read, some time since, from English statistics showing the effect upon the health of a difference in wages; the figures were gathered in large manufacturing establishments, and it was shown that two sets of men working under exactly the same conditions of air, light, moisture, amount and kind of work, but one receiving a few pence more per week than the other, the class who got least pay had more sickness, lost more time, and died on an average earlier by a considerable per cent. than the others. This was wholly from the depression of mind caused by smaller pay; the needs of a family, the want of many things in life they could not have, perhaps envy toward those who received more compensation, had brought a dejection of mind which gave the results the statistics show.

Not merely does financial difficulty depress the spirits and thereby the bodily power, but it makes men reckless and forget themselves, and by overwork and exposure, bring on sickness. Couple a great physical exertion with a depression such as we have supposed, and a man who could keep well under it must have a constitution "like iron."

A man who is succeeding in business and enjoying himself, seldom overworks brain or muscle, or forgets his physical needs; but one who has much at stake—his all perhaps, his reputation and personal pride—is very apt to do this; he imagines that health, or life, will be of small worth to him if he fails, and he is ready to almost sacrifice both to succeed.

The annals of medicine show numberless cases of dyspepsia and other affections which have been caused

by sudden reverses in fortune, failure of some plan, or the blasting of some hope. But medical records are needless, for in the observation of nearly every adult such cases have occurred.

Late hours are carrying more people to untimely graves than the deadly missiles of warfare. The bullet and the crashing shell mangle limbs and inflict flesh wounds, but midnight dissipation impairs the whole system and hurries all ages and sexes under the sod. This growing tendency to turn night into day is one of the most serious of evils, and should receive the earnest consideration of those interested in the welfare of the human race. By looking back at the newspapers of that time, it will be found that New Yorkers, in the beginning of this century, departed from places of amusement not far from the time at which they now enter them. The doors of the theater opened at half past five o'clock, and the curtain "rose at half-past six." The early Knickerbockers attended parties and other social gatherings at seven, and returned home between nine and ten o'clock. Now all this is changed, and "between nine and ten" is the fashionable hour for going out. And what is true of grown people is rapidly becoming true of juveniles. Youngsters in round-about and misses in short dresses are arranging their finery long after the hour when children of the last generation were tucked away in trundle beds. Little ones—scarce loosened from their mothers' apron-strings—are dispatched in carriages to "children's parties" from half-past eight until half-past nine, and brought home at midnight or later. "Don't have the carriage yet," said a little miss in our hearing a few evenings since; no one else will be there until half-past nine;" and with that she gave a toss of her head, as

much as to say that she was not going to keep any less fashionable hours than her mother.

Mr. J. B. Thompson, of England, says: "In comparing the vital statistics of different countries, it is found that as man approaches to civilized usages and habits, so in the same ratio are diseases developed and accumulated; and as simple primitive habits are succeeded by modern innovation and more artificial modes of life, and an existence less compatible with man's primitive simplicity and nomad-life, so in like ratio can we trace the germs of disease and premature decay.

"Taking the aboriginal tribes of our Polynesian possessions, we can there easily trace the rapid decrease of population from these circumstances; and since the abuse of animal food and stimulants has been practiced, the mortality is incredible; from an average life of ninety and one hundred and ten, in the earlier years of our first acquaintance with these people, we now find them rarely exceed the ordinary average life even in this country. The same may be said of our North American and South African colonies; and in addition to the introduction of our artificial mode of life, disease and dissipation have kept pace. Since the usual animal food has been made known among our new acquaintances in all parts of the dependencies of Great Britain, so likewise do we find an increased mortality from fevers and inflammatory diseases not previously indigenous or prevalent among natives of those countries.

"In Circassia, Lapland, Terra del Fuego, and other remote countries not yet visited by European luxuries, we find very little variation in the average of vital statistics; and among these simple livers in the ordinary range of man's life is that of fourscore years and more. Fish,

oil and blubber constitute the diet of the Esquimaux, and the Terra del Fuegians, with very little fruit and vegetables. They are an active, lively, and healthy people, though exposed to very variable ranges in temperature, and not the most agreeable climates, generally cold and humid, with much snow, frost and rain, frequent stormy seasons, with temperature very low, and never approaching our ordinary moderate spring or autumn weather.

“It thus appears to us, and there seems no doubt on the subject, that, as our luxuries increase, so will our diseases; and it is remarkable that this has also an influence, not only on our lives, but on our population.”

Socrates used to say that it was pleasant to grow old with good health and a good friend, and he might have reason; a man may be content to live while he is no trouble to himself or his friends; but after that it is hard if he be not content to die. I knew and esteemed a person abroad, who used to say, any man must be a mean wretch who desires to live after threescore years old. But so much, I doubt, is certain, that in life, as in wine, he that will drink it good must not draw it to the dregs. Where this happens one comfort of age may be, that whereas younger men are usually in pain whenever they are not in pleasure, old men find a sort of pleasure when they are out of pain; and as young men often lose or impair their present enjoyment by craving after what is to come, by vain hopes or fruitless fears, so old men relieve the wants of their age by pleasing reflections on what is past. Therefore men in health and vigor of their age should endeavor to fill their lives with reading, with travel, with the best conversation, and the worthiest actions, either in public or private stations;

that they may have something agreeable to live on when they are old, by pleasing remembrances.

The daily confession of Christ is as necessary to our spiritual life and growth as food is to our bodies. My heart awakes to a new appreciation of this fact from time to time, and is refreshed by it. Recollections of some past and almost forgotten experience, in which faith and the confession of Christ were brought into exercise, come gushing into the mind and give a new start to life, making every thing look bright and cheering. A few incidents of faith experience are even now vividly presented to mind. Once, when suffering from a malignant fever, which was gaining power over me every hour, these words came to me with great force: "Thus far shalt thou go and no farther." The disease was checked from that moment, and I began to recover. This was many years ago; but four or five years since I was again attacked by the same disease, and for a considerable time it threatened to deprive me of my reason; but I persisted in the confession of Christ, notwithstanding evil spirits seemed bent on preventing it; and, in an unusually short time, the fever abated, leaving me weak in body but strong in the Lord, and in the fullest confidence that "the name of the Lord is a strong tower, into which the righteous may run and be safe."

LOSING TIME IN GETTING HEALTH.

The most losing thing in the world next to sin is sickness. And no amount of time that is judiciously expended in attaining a sound bodily condition can be misspent. One, two, or three years, devoted to the thorough

renovation of a shattered constitution, is often the best investment that the invalid can possibly make. And so far from causing him any loss of time, it may add five, ten, or twenty years to his life, besides rendering every year of his life more happy and useful.

Cornaro, who wrecked his health at forty, by adopting a "sober and temperate life," enjoyed remarkably good health and vigor to nearly one hundred years of age.

Young men who find themselves in a state of chronic invalidism at the period of life when they should be in their prime—twenty to twenty-five years of age—are usually the most impatient patients we have to deal with. They have broken by living too fast, and to regain lost time are anxious to make a quick recovery. Tell them that physical regeneration is with them a three years' job, and they want to know if in some way it cannot be accomplished in three months; or if three months be named, they will want the time reduced to three weeks. They are in a hurry to settle, they are anxious to go into business, they must get married, they want everything, and that speedily. They are willing to take any number and variety of baths, cold, hot, or any grade between; to exercise to any extent; to eat as much of unseasoned food as you can prescribe; do anything, or submit to anything (except the one thing most needful—keeping themselves quiet), provided they can be made "all right" without delay. They are continually worrying themselves and annoying their physicians to have that done which is impossible. They want the laws of nature changed for their especial benefit, and nature refuses. They desire to recover health outside of the operation of the laws of the vital organism, and vitality says, No. Nature will not be contravened. Vitality will not be

hurried. The recuperative power being in the living organism, and not in external agents, the vital machinery must and will have its own good time, or the work will not be well done. Hurried cures are like stimulated strength, worse than useless.

The old proverb, "*Mens sana in corpore sano*," is familiar to every one, and as good as familiar. I suppose it will be acknowledged that such a combination is the rare exception, rather than the rule. Who of my readers ever saw one of whom it might truly be said: "He has a perfectly healthy mind, in a perfectly sound and healthy body?" Witness something like an approximation to it, in a few hale old men that we occasionally meet; some of them survivors from the Revolution, or veterans of the war of 1812; some from the more peaceful avocations of agricultural or professional life. The writer of this was privileged, a few years since, to hear "Old Father Harvey," as he was familiarly called, of Oneida county, in New York State, preach to a large audience of his Baptist brethren, or, as he called them, "children." He was then 109 years old, and survived some years later. A few such are to be found, full of serene vivacity, and giving fair promise of yet many years of sojourn among us. In the nature of things should this be the rare exception; or might we reasonably hope and expect to see such sights every day?

Many years since I met this idea somewhere: "Give attention first to the *soul*; secondly to the *body*; and lastly to the *mind*." Is not this order usually reversed? We are all of us very much inclined to think the intellect of so much more consequence than the body, that, to secure high intellectual training and culture, we are quite willing to disregard or forget the laws of our phys-

ical nature, and too often do not awaken from our fond dreams of literary fame until the body has already given way in ruined health. As to the soul, we not only do not seek first its welfare, but too often, nay, generally, it does not come third in order, but is neglected entirely; as if the few fleeting years of enjoyment of wealth, pleasure and fame were adequate to satisfy the immortal nature with which God has endowed us.

To be healthy we must retrace our steps. We must live right. More than that; we *must be born right*. Dr. Tholuck, professor of theology in the University of Halle, and well known in this country as a distinguished evangelical divine, remarks: "Were the physical laws which govern the production of our race strictly observed from generation to generation, there would soon be an end of the frightful diseases that so much shorten life; and of the long list of maladies that make life a torment and a trial." It is not true that, at birth, the mind of a child is a blank and waste, like a sheet of white paper, on which may be traced any lines or figures we please. The child has the germ of all the faculties it ever subsequently develops. Education, no doubt, assists such development, but that is all. The great question is, whence is the germ derived? And the answer is as promptly made: in the parental influence. Every parent is solemnly responsible to society and to God for both the mind and body of his offspring, and, until this truth is well accepted, much of the patient and well-meant efforts of teachers will fail of their legitimate object.

The way not to be sick, is to obey the laws of God. Sickness is the penalty of disobedience. Health is the reward of obedience. All sickness is the result of the violation of law. The way to keep well, then, is to obey

the laws of health. But we cannot obey these laws unless we know what they are. We may be ignorant of the laws of life, and unconsciously break them, and still we will be punished for breaking them, just the same as if we knew what they are. Disobedience to law brings its own punishment, whether we know anything about the law or not. The way, then, to keep well, is simple—learn the laws of health, and obey them. How shall we learn them? By studying nature. Go out into the fields and woods; roam over the hills and mountains; loiter along the shores of lakes and rivers; study the trees, and plants, and grass, and flowers; watch the insects, and birds, and fishes; notice all the animals that roam over the meadows and through the wild woods, and ask yourself this question: What keeps all these plants and animals alive and well? Now sit down by the side of the bubbling brook, and see if God will not speak to your soul through the many voices of animated nature. It is the pleasant sunshine, the warm rain, the cool breeze, the light and heat, the moist earth; these are the influences which give life, and health, and beauty, to plants and animals. It is by means of these agencies that God paints the trees, grass, flowers, birds, and fishes.

Trees, flowers, and plants, are not sick. Insects, birds, and fishes, are not sick. The squirrels, and rabbits, and foxes, and bears, and wolves, are not sick. And God clothes and feeds all these, and keeps them alive and well.

Read now the lesson of all this. If God so clothes all these, will he not much more clothe you, O ye of little faith? God takes care of all other beings which he has created, and has he made no provision for man, for whom all the others were created?

We need faith—faith to believe that God has provided a plan by which we may be well and happy. This plan we may learn from the lessons of nature. These same influences which keep plants and animals well, will keep us from being sick. These are sunlight, air, food, drink, rest, sleep, exercise—a life freely subjected to these influences which God has created for our preservation.

HEALTH OF BUSINESS MEN.

The principles of the health reform are gaining ground and spreading with encouraging speed. It is coming to be noticed and advocated, more or less in almost all the respectable papers of the day. Bills of fare at hotels also show an improvement in this respect. We believe that the good work is still onward.

We can scarcely take up a paper without seeing something about the infringement of the laws of health by women of fashion; few seem to imagine that business men are equally guilty concerning this matter. We believe the average of health in our country is lowered as much by the systematic, persistent disregard of hygienic laws on the part of business men as by any other cause. The evil is so general, we might almost say universal, it passes unnoticed; but if only *one* man pursued the course actually followed by the majority of business men in this respect, all the rest would vote him a lunatic or a deliberate suicide. If this seems strong language, let us follow a representative “business man” through one day, judging his mode of life by a common-sense standard of healthful living, and see if he be guiltless of the sin of self-destruction.

He has so immersed himself in his business that he finds it impossible to shake it off on going home at night; it follows him and makes his rest fitful and uncertain. He rises in the morning unrefreshed, and, nine chances in ten, cross; he swallows his breakfast in haste, gulping down hot coffee, hot cakes, hot everything, as though his stomach were a salamander safe, glancing meanwhile over the market reports in the morning's paper, and laying out the day's work. Then, if the weather be cold, he muffles himself up to the eyes, because, accustomed to the furnace-heated air of home and office, he cannot bear the cold, and rushes "down town," his mind working like a steam-engine all the time, with never a glance at what little of nature he might see, and never a full, strong draught of the keen, fresh air. Once in his place of business, though, strictly speaking, every place is a place of business to him, heart, mind, and strength, are completely absorbed. In cities, business hours nominally last from nine A. M. to three or four P. M.; actually they extend over a much longer period than this. At best, there are six or seven hours of continuous, intense mental strain—such strain as nothing but actual business work requires. If luncheon breaks in upon this strain, it affords but little relief. Our business man hurries to a restaurant and hurriedly swallows some indigestible stuff, too often washed down by worse than indigestible liquor, and if he talks at all, it is of business to men as hurried and worried as himself. Seven o'clock finds him at home eating a dinner on which all the culinary skill of the house has been expended. Savory meats and vegetables, rich pastries and puddings, tempt him to overload his stomach, which now revenges itself for its long-enforced abstinence. From mere habit he eats

rapidly ; then he smokes a cigar or two to settle his dinner. If he have fashionable wife and daughters, he probably finds himself dragged to a party or the opera ; if not, some meeting of bank directors or stockholders, or some unfinished business of his own, claims his attention, and so the day closes without having afforded one moment of healthful recreation, one hour of social enjoyment with his family.

Nor is this picture overdrawn ; we believe it true to the life of the mass of business men in large cities, and, with slight variations, it is true to the life of their brothers in smaller towns. There are noble exceptions ; but we are speaking now of the general rule, not of exceptions.

We will not now speak of the moral and social effect of such a life, but consider it only from a physiological point of view. It requires no gift of prophecy to foretell the consequences of such a life ; such reckless prodigality of vitality can only result in premature breaking down of the vital organs, utter derangement of the nervous system, and too often in hopeless insanity, proceeding from an overtaxed brain.

When to long-continued and excessive work and meals of indigestible food, eaten at unseasonable hours and in unhealthy haste, be added, as is often the case, the stimulants of tobacco and liquor, need we wonder that, as a nation, we furnish the greatest proportion of insane and dyspeptic people to our population of any country on earth, unless it may be that France excels us in the first particular ?

We hold it a sin to have dyspepsia ; if the disease be inherited the sin lies at the parent's door, but certainly "either this man hath sinned or his parents." The laws of health are as much God's laws as are the ten com-

mandments; we have no more right to break the one than the other. We impeach the "hurry and worry" which is characteristic of the "universal Yankee nation" as a great law-breaking, dyspepsia-producing criminal, and at the bar of enlightened conscience plead for its banishment from all honorable business.

Do not misunderstand us as reprobating close attention to business; none can approve thorough-going business habits more heartily than we; what we do condemn is this absorption of a man's all—body, mind, and soul—in business, this acting as though there were but one book in God's great universe, and that book a ledger. We believe that a man will accomplish just as much during his life—yes, more, because he will be able to labor longer—by giving to his business only its just proportion of time, and then taking time to eat his meals in a Christian manner, and devoting the hours due them to his family and to his own physical, social, intellectual, religious culture. Were all business men to do this, we should hear of fewer sudden deaths among them—"mysterious providences" we are apt to miscall them, for there is no mystery about the matter, except that they had not died sooner—we should have fewer of the still sadder cases of softening of the brain, and all the various forms of breaking down of the mental forces, even while the physical system retains its vigor. It would be less of a rarity to see a hale, hearty old man.

Health and thrift oftener go together than most persons are aware of. It is a blessed thing to feel that to-morrow is certainly and abundantly provided for, irrespective of the efforts and profits of to-day; in other words, to be a little forehanded, to have a little spare money always on hand. To attain such a position, it is

a necessity for the masses that economy should be practiced for quite a number of years. Money is a medicine, and making money is both a tonic and a stimulant; it accelerates the circulation; it enlivens the spirits; it lightens the heart; it wakes up a man's energies. Take any man any day who is "hard up"—with whom the world does not go well—who finds he is going backwards pecuniarily, and yet claims are coming upon him which must be met; wants which must be supplied; necessities which cannot be evaded; his rent must be paid; his board bill must be liquidated; the butcher and baker and milkman all are pressing for their respective dues; let a man be ever so hopeful, ever so courageous, ever so brave, in general, there will be moments when the difficulties of his position becomes so pressing that his manliness almost forsakes him; he starts at his own shadow, and well-nigh comes to the conclusion that it is useless to struggle longer, and that he "might as well give up." Just at this juncture let a proposition be made by which, with the expenditure of a reasonable amount of bodily activity and mental adroitness, more money can be certainly made than he has ever been accustomed to realize in so short a time, with every guarantee that the dividend will increase with time in an encouraging proportion, why he becomes a new man within the hour; his face wears a new aspect, a new life comes into his eyes; color rushes to the cheeks; the spring of youth is impressed into his steps, and there is an elasticity imparted to both mind and body to which he has been long an entire stranger. Therefore money-making, in a legitimate way, is a medicine good to take and easy, and to save is the easiest way of money-making.

It is no exaggeration to say that health is a large in-

gredient in what the world calls talent. A man without it may be a giant in intellect; but his deeds will be the deeds of a dwarf. On the contrary, let him have a quick circulation, a good digestion, the bulk, thews and sinews of a man, and the alacrity, the unthinking confidence inspired by these, and, though having but a thimbleful of brains, he will either blunder upon success or set failure at defiance. It is true, especially in this country, that the number of centaurs in every community—of men in whom heroic intellects are allied with bodily constitutions as tough as horses—is small; that, in general, a man has reason to think himself well off in the lottery of life if he draws the prize of a healthy stomach without a mind, or the prize of a fine intellect with a crazy stomach. But, of the two, a weak mind in a herculean frame is better than a giant mind in a crazy constitution. A pound of energy with an ounce of talent will achieve greater results than a pound of talent with an ounce of energy. The first requisite to success in life is to be a good animal. In any of the learned professions a vigorous constitution is equal to at least fifty per cent. more brains. Wit, judgment, imagination, eloquence, all the qualities of the mind, attain thereby a force and splendor to which they could never approach without it. But intellect in a weakly body is “like gold in a spent swimmer’s pocket.” A mechanic may have tools of the sharpest edge and highest polish; but what are these, without a vigorous arm and hand? Of what use is it that your mind has become a vast granary of knowledge, if you have not strength to turn the key?

Good physical health lies at the very foundation of success and happiness, and should be most highly prized and every available means taken to retain it by those

who possess it, and to regain it by those who have lost it. With health man can accomplish almost anything he wills, but without it he is like a giant bound, helpless. Horace Mann once truly and beautifully said:—"All through the life of a pure-minded, but feeble-bodied man his path is lined with memory's gravestones, which mark the spots where noble enterprises perish for want of physical vigor to embody them in deeds." The great study of mankind is man, and man's first duty is to obey the laws which God has implanted in his very being for his guidance.

PUBLIC HEALTH IS PUBLIC WEALTH.

The study of the laws of health and disease dates back to the time of the philosopher Plato, who advocated the provision of State physicians. The sanitary works of ancient Rome are a matter of history, and it is recorded that their neglect in the middle ages resulted in a frequency of plagues. In England, in the time of Henry VI., commissioners of sewers were sent into all parts of the realm, to inquire into the state of the "walls, ditches, banks, gutters, sewers, bridges, streams, and other defences by the coast of the sea and marsh ground." In the reign of Henry VIII. this commission was extended over twenty years, the commissioners taking oath that they would execute the ordinances according to their "cunning, wit, and power." Subsequently the commission was rendered permanent.

Within the last few years a great deal of attention has been given to the subject of public health, and the truth of Benjamin Franklin's opinion, that "public health is public wealth," is generally admitted.

Dr. Jenner has proved that a large part of the diseases which are looked on as inevitable, are really the result of ignorance of the laws of health in the present or past generations, and he has boldly asserted that an enormous mortality was due "to the neglect of their duties by the wealthy, who know and obey the laws, but fail to give the poor the means of obeying them; to the inertia of the Legislature, its unwillingness to interfere with individual action, its fear of touching vested interests, and its dread of offending religious prejudices, though they may be the offspring of ignorance."

As these facts become known, as soon as it is fully recognized how much suffering and death may be traced to the want of proper sewerage, to crowded lodgings, narrow unpaved streets, ill-ventilated workshops, the destitution of skillful medical advice, the neglect of children, doses of opium, and overflowings of quackery and slaughter-houses, the responsibility of the sanitary authorities will not much longer remain unquestioned, and measures will be taken to enforce the performance of their duties, which we fear are but too much neglected.

When the death rate of an English town exceeds 23 per 1,000, or when one-tenth of the inhabitants petition the Privy Council, a thorough inspection of its sanitary state is at once instituted, and improvement immediately follows. Such a system as this is worthy of imitation as securing the utmost vigilance.

For the proper performance of the duties of an officer of health, special qualifications in science are required. These lie in pathology, including vital statistics, and in chemistry with natural philosophy.

In *pathology*, because this science implies an exact

study of the causes of diseases in their relation to the living body.

In *vital statistics*, because by analyzing the composition of various death rates, and by learning how the pressure of particular diseases differs under different circumstances of climate, season, dwelling, age, sex, and occupation, definite standards of comparison are gained.

In *chemistry*, because without such aid there can be no accurate judgment as to impurities of air and water, dangerous impregnations of soil, or poisonous admixtures in food; and because the same science also guides the application of deodorizing and disinfectant agents.

In *natural philosophy*, because many nuisances are traced, and many questions as to ventilation and overcrowding, are answered by its laws.

Already a vast improvement in the general health of the community is perceptible, owing to the sanitary reforms of recent years; but there is still room for a step further in this direction, which will result in a moral elevation which has always followed in its track. It has been truly said that "space, a free atmosphere, and cleanliness, have a great deal to do with the *possibilities* of human virtue."

Our opinion having been requested as to the advantage of making the elements of human physiology, or a general knowledge of the laws of health, a part of the education of youth, we have no hesitation in giving it strongly in the affirmative. We are satisfied that much of the sickness from which the working classes at present suffer might be avoided; and we know that the best directed efforts to benefit them by medical treatment are often greatly impeded, and sometimes entirely frustrated, by their ignorance and their neglect of the con-



ditions upon which health necessarily depends. We are therefore of opinion that it would tend greatly to prevent sickness, and to promote soundness of body and mind, were the elements of physiology, in its application to the preservation of health, made a part of general education; and we are convinced that such instruction may be made most interesting to the young, and may be communicated to them with the utmost facility and propriety in the ordinary schools, by properly instructed schoolmasters.

Milton well defines the usefulness of such knowledge:

“Not to know at large of things remote
From use, obscure and subtle, but to know
That which before us lies in daily life,
Is the prime wisdom.”

The influence of large towns upon the health of the millions of people they contain, demands serious consideration. In Europe they have long since begun to give the most earnest attention to the subject, and with a result in diminishing disease and prolonging life, that no humane person can contemplate without the most pleasing emotions. In London, by diligent investigation of the causes of sickness and death, and the steady application of the means of removing them, the ratio of mortality has been diminished in the course of less than two hundred years nearly one-half. In 1665 it was one in twenty-four of the population; for the last ten years it averaged one in forty, and in 1856 it was brought as low as one in forty-five. Not only in London, but in Liverpool, Edinburgh and in Paris, as well as other continental cities, similar judicious efforts have been made, with the like humane results.

Our own country, though somewhat tardy in following

the good example of Europe, has yet partly begun this work of humanity. In Boston, Providence, Philadelphia, and some few other cities, health departments have been established, composed of skillful physicians, whose studies and experience would seem to render them peculiarly efficient in recognizing the causes of disease, and in applying the means for their removal. The result is best indicated by the fact that in Philadelphia the rate of mortality is about one in forty-four, in Boston one in forty, and in Providence one in fifty; while in the City of New York, where nothing has been yet efficiently done for the prevention of disease, the deaths are in the startling proportions of one to every twenty-seven of the population! Now that by the enormous increase of the population of New York, it has been wrested, as it were, from the dominion of nature, the malignant interference of man has nearly doubled the mortality, and placed our metropolis in the unenviable position of the lowest rank for health of most of the large cities in the world.

The mortality of London is.....	25	in 1,000
The mortality of Berlin is.....	25	in 1,000
The mortality of Turin is.....	26	in 1,000
The mortality of Paris is.....	28	in 1,000
The mortality of Genoa is.....	31	in 1,000
The mortality of Lyons is.....	33	in 1,000
The mortality of Hamburg is.....	36	in 1,000
The mortality of New York is.....	36.38	in 1,000

This is no very agreeable fact to contemplate, but it is consolatory to know that the causes of the unhealthiness of New York are obvious and removable. They are summed up thus in a report of the benevolent "Association for Improving the Condition of the Poor," in the following items: Defective Dwellings, Cellar Residences, Insufficient Sewerage and Drainage, Filthy Streets.

Perhaps no subject of the same great importance to the people at large is so imperfectly understood as that of human health and human strength. Extravagance in the use and destruction of human life may be a feature inseparable from the rapid development and growth of a young nation; but, now that our population has reached an extent of forty or fifty millions, it is certainly quite time that we should give earnest attention to the checking of this inordinate waste. We are building railroads, telegraphs, foundries, machine-shops, factories, and warehouses with marvelous rapidity over our vast extent of country, but no amount of present prosperity can be relied upon to compensate for a continued disregard of the laws of human health.

The line at the head of this chapter, although written nearly a century ago by that great philosopher and economist, Dr. Franklin, is of increased importance to us at this day, because human labor is much more expensive now than then, and, since the introduction of steam for the performance of so large a portion of the heavy work, the skill and intelligence of one man, when directing the vast power of the steam-engine, can do the work that without this assistance would require ten men. England has already become greatly alarmed at the immense loss she suffers by the unnecessary sickness and waste of time and strength of her laboring population, and shows much earnestness in the improvement of their condition; and New York, as well as many other parts of the United States, cannot afford to be so much behind her in this respect. In violation of the plainest laws, we have in our haste built up a vast pile of buildings which are but little better than immense tombs for the premature interment of the living.

THE GOSPEL OF HEALTH.

No one, after examining the subject, can deny that eating and drinking have a close relation to our tempers and passions, and to our power of self-control. Of course they stand closely related to our ability to obey the gospel. The intemperate are irritable, impatient, and restless, under restraint. To understand this is of special importance to mothers, who too often pride themselves on their cooking, and ruin their children in their efforts to gratify this foolish and wicked pride. To feed children on rich and highly seasoned food, on meats and condiments, pepper, spices, &c., and then expect them to be gentle, kind, and obedient, is the greatest folly. Fill their stomachs, and thus excite their nerves, with stimulating, irritating food and drinks, and your prayers, and precepts, and corrections, must be in vain. As reasonably give them whisky to drink, and pray that they may not get drunk, or blame them for becoming so. Children are greatly abused by their parents in this respect, and are much to be pitied.

It is truly gratifying to know that so many are waking up to the importance of this subject, and are in some measure correcting their habits. But few, very few indeed, understand that the subject of *dress* has any relation to morals. It is generally admitted that it is wrong so to dress as greatly to endanger health, but beyond this, little inquiry has been made. I propose to go beyond this, and point to the connection between habits of dress and the great principles of morality.

It is unfortunate that this subject so highly concerns females. Yet it is so. Fashion is the especial tyrant over the female world; and in this, perhaps, more than

in any other respect, is woman shown to be "the weaker vessel." I can notice but a few facts, but these are so common that they are continually before us.

It is a fact that the majority of women compress their waists by tight clothing; and this is true even of most of those who do not intend to "lace." This evil habit has a direct and powerful influence over the action of the heart, lungs, &c., and prevents the free circulation of the blood.

It is a fact that most women wear shoes so small that they cramp the feet, and so thin that they subject the wearers to the effect of changes of temperature, and to the moisture of the ground.

It is a fact that almost all women-kind, old and young, expose their ankles to the action of the weather; indeed their lower limbs are generally unprotected, being covered only by one or two thicknesses of thin cotton.

From these three causes the circulation is retarded, and the blood often driven almost entirely from the feet and lower limbs. I now notice further.

When the circulation is retarded by violence to the system, as tight lacing, compression and exposure of the feet, &c., the blood in the brain becomes congested or inflamed, the imagination is diseased, and the thoughts and feelings are all perverted.

When the blood is driven from the lower limbs, it is confined in its action between the brain and the pelvic regions; being checked in its progress in the region of the genitals, these organs are, by the presence of an excess of blood, and by its unnatural or clogged condition, stimulated to excessive and unhealthy action. Now it is beyond denial that the brain and the lower parts of

the body, as well as the brain and stomach, are closely connected and have a strong influence over one another. And if the brain be inflamed, and the thoughts and feelings perverted, and the genitals and the organs connected therewith be likewise inflamed and stimulated to unhealthy action, libidinous dreams, impure thoughts, and licentious actions, are the result as surely as that effect follows cause. The manner in which most of the little girls of this age are clothed is directly calculated to lead them into licentiousness, and the immoral tendencies and actual immorality of the masses are only what might be expected from the present habits of eating, drinking and dressing.

"The fashions," especially those for females, are mostly furnished by the most disreputable class of the most licentious city of the civilized world. For this reason it is harder to introduce or induce a reform in dressing, than in eating and drinking. The appetite is strong, but fashion is stronger. The gay, the reckless, and the impure-minded, control the world on the subject of fashions. And "the church," which was designed by its Head to be "the light of the world," has been led captive, and now follows the light the world holds out, not heeding where it leads. But the trumpet of the gospel gives no uncertain sound on this subject. Oh! that all who name the name of Christ would heed its teachings, and dress modestly and healthfully. Says Paul, 1 Tim., 4: 8, "Godliness is profitable unto all things, having promise of the life that now is, and of that which is to come."

We have the plainest evidence that God regards health as a blessing, and disease as the fruit of disobedience. Said he to the children of Israel: "If thou wilt

diligently hearken to the voice of the Lord thy God, and wilt do that which is right in his sight, and wilt give ear to his commandments, and keep all his statutes, I will put none of these diseases upon thee, which I have brought upon the Egyptians; for I am the Lord that healeth thee." Ex. 15:26. And again he said, "And ye shall serve the Lord your God, and he shall bless thy bread, and thy water; and I will take sickness away from the midst of thee." Ex. 23:25. These texts contain a two-fold promise; viz., to take sickness away from them, and to put no disease upon them; that is, to *make them well, and to keep them so*. The same is again promised as follows: "And the Lord will take away from thee all sickness, and will put none of the evil diseases of Egypt, which thou knowest, upon thee; but will lay them upon all them that hate thee." Deut. 7:15. "If thou wilt not observe to do all the words of this law that are written in this book, that thou mayest fear this glorious and fearful name, THE LORD THY GOD, then the Lord will make thy plagues wonderful, and the plagues of thy seed, even great plagues, and of long continuance, and sore sicknesses. Moreover he will bring upon thee all the diseases of Egypt, which thou wast afraid of; and they shall cleave unto thee. Also every sickness, and every plague, which is not written in the book of this law, them will the Lord bring upon thee, until thou be destroyed." Deut. 28:58-61.

Now if sickness be an infliction, and the result of sin, how consistent, how necessary to humble ourselves before God, to confess and forsake our sins, and ask him to stay the affliction, and heal us. The psalmist connected the forgiveness of sin and the healing of diseases together. "Bless the Lord, O my soul, and forget not all his bene-

fits. Who forgiveth all thine iniquities; who healeth all thy diseases." Ps. 103:2, 3. And this connection is maintained in the gospel.

In Isa. 53, we find a remarkable Messianic prophecy. The passion of our Saviour, and the objects of his suffering, are here more clearly stated than in any other passage of the Old Testament. Verse 5 reads thus: "But he was wounded for our transgressions; he was bruised for our iniquities; the chastisement of our peace was upon him, and with his stripes we are healed." That the prophet, as well as the psalmist, referred to the healing of diseases we learn from an application of this prophecy in Matt. 8:16, 17: "When the even was come they brought unto him many that were possessed with devils; and he cast out the spirits with his word, and healed all that were sick; that it might be fulfilled which was spoken by Esaias, the prophet, saying, "Himself took our infirmities and bare our sicknesses."

The forgiveness of sin and the healing of diseases were inseparably connected by our Saviour in his expressions concerning his miracles. When one was brought to him sick of the palsy, he said, "Thy sins be forgiven thee." But when certain ones looked upon this as blasphemy, he said, "Wherefore think ye evil in your hearts? For whether is easier to say, Thy sins be forgiven thee; or to say, Arise and walk? But that ye may know that the Son of Man hath power on earth to forgive sins (then saith he to the sick of the palsy), Arise, take up thy bed, and go unto thine house." Matt. 9:4-6. Thus it appears that for him to say, Thy sins be forgiven, was equivalent to saying, Arise, and walk, or, Thy sickness is healed. And thus my proposition is most clearly proved, that the gospel of Christ is a gospel

of health ; and we are health reformers by reason of our faith in Christ. Our religion and our principles of health reform are inseparable.

Holier than any temple of wood or stone, consecrated with diviner rites and for diviner purposes, is the human body. Reverence for that, as possessed by ourselves or others, is better than reverence for chancel and altar. Its cleanliness, health, and entire well being, may properly be one of our chief concerns. It is the exquisitely constructed and perfectly adapted medium of the human spirit ; it is the best and highest earthly receptacle of the Holy Spirit. Reverence for it leads to reverence for all other holy things. Care for it is care for the spirit that dwells within it. Our sense of its worth and dignity ought never to be dulled by its neglect or abuse. He who is careless of his physical interests, except at times and in cases where spiritual interests for the hour entirely and rightfully override and annihilate them, will be likely to disregard the bodies of others ; to witness their disease, deformity, or uncleanness without concern ; to treat them with disrespect, and by consequence the souls that are in them. The human form, wherever seen, ought always to be to our eyes the shrine which incarnates and protects the holiest mysteries, which holds the sacred fire of Heaven, the indestructible tokens of God, the pledges of immortality. It is more plastic to spiritual forces than anything else. It is the Word of God written in flesh and blood. Whenever it shall be understood and treated rightly, " The tabernacle of God will be with men, and He will dwell with them."

SECRETS OF HEALTH.

The only true way to health is that which common sense dictates to man. Live within the bounds of reason. Eat moderately, drink temperately, avoid excess in anything, and preserve a conscience "void of offense."

Some men eat themselves to death, some wear out their lives by indolence, and some by over-exertion, others are killed by the doctors, while not a few sink into the grave under the effects of vicious and beastly practices. All the medicines in creation are not worth a farthing to a man who is constantly and habitually violating the laws of his own nature. All the medical science in the world cannot save him from a premature grave. With a suicidal course of conduct he is planting the seeds of decay in his own constitution, and accelerating the destruction of his own life.

The best way to insure good health is to see that the blood is renewed and the system built up from good, digestible, nutritious food, taken without condiments or stimulants, and only in such quantities and at such times as nature demands.

Moderation in eating and drinking, short hours of labor and study, regularity in exercise, recreation, and rest, cleanliness, equanimity of temper and equality of temperature, these are great essentials to that which surpasses all wealth, namely, health of mind and body.

Good, wholesome food, and temperance, with pure, cold water to drink and bathe in, with fresh air, plenty of exercise, and a clear conscience, are said to do more to restore or preserve health, and prolong life, than every doctor and medicine in the universe.

The four ordinary secrets of health are—early rising,

exercise, personal cleanliness, and rising from the table with the stomach unoppressed. There might be sorrows in spite of these, but they will be less with them, and nobody can be truly comfortable without them.

Keep warm. Eat regularly and slowly. Maintain regular bodily habits. Take early and very light suppers. Keep a clean skin. Get plenty of sleep at night. Keep cheerful and respectable company. Keep out of debt. Don't set your mind on things you don't need. Mind your own business. Don't set yourself up to be a sharper of any kind. Subdue curiosity. Avoid drugs.

"Keep thy feet dry—thy skin clean—thy digestion regular—thy head cool—and a fig for the doctors."

If you are well, let yourself alone. One of the great errors of the age is, we medicate the body too much, the mind too little. More persons are destroyed by eating too much than by drinking too much. Gluttony kills more than drunkenness in civilized society. The best gymnasium is a woodyard, a clearing, or a cornfield. A hearty laugh is known, the world over, to be a health promoter; it elevates the spirits, enlivens the circulation, and is marvelously contagious in a good sense. Bodily activity and bodily health are inseparable. If the bowels are loose, lie down in bed, remain there, and eat nothing till you are well. The three best medicines in the world are warmth, abstinence, and repose.

Secure, if possible, a vigorous constitution. Eat a good supply of the best food. Take a proper amount of physical exercise daily. Use pure water to drink. Secure an abundance of pure air for the lungs. Take eight hours of good sleep out of every twenty-four. Observe cleanliness. Observe regularity in all your

habits. Take wise but not excessive recreation. Work at some useful and congenial employment.

Never eat hurriedly, because it causes indigestion. Never speak in a hurry, because it is ominous of instability. Never think on going to bed, because it makes wakefulness. Never eat between meals, because it produces irritation. Never dine in excitement, because the blood is called to the brain which ought to aid digestion. Never swallow food without thorough chewing, because it brings on dyspepsia. Never eat when you do not want it, because when you shall want you cannot eat. Never sleep with your mouth open, because the air breathed with carbonic acid disturbs the mucous membranes. Never go to rest without washing the hands and face, because more dirt accumulates on the skin in the day than night, and is re-absorbed during the night.

Fear not to do manfully the work for which your gifts qualify you; but do it as one who must give an account of both soul and body. Work, and work hard, whilst it is day; the night cometh soon enough,—do not hasten it. Use your faculties, use them to the utmost, but do not abuse them,—make not the mortal do the work of the immortal. The body has its claims; it is a good servant; treat it well, and it will do your work; it knows its own business; do not attempt to teach or to force it; attend to its wants and requirements, listen kindly and patiently to its hints, occasionally forestall its necessities by a little indulgence, and your consideration will be repaid with interest. But task it, and pine it, and suffocate it; make it a slave instead of a servant; it may not complain much, but, like the weary camel in the desert, it will lie down and die.

A single hard lift, an hour of heating work, an even-

ing of exposure to rain or damp, a severe chill, an excess of food, the unusual indulgence of an appetite or passion, a sudden fit of anger, an improper dose of medicine—any of these, or other similar things, may cut off a valuable life in an hour, and leave the fair hopes of usefulness and enjoyment but a shapeless wreck.

The simple color of one's surroundings has a marked influence on his health. Yellow on the walls of our rooms has a very depressing effect on the mind. Violet is worse. A man would go mad in a little while in a violet papered or painted room. Black rooms, or rooms heavily draped in mourning, produce gloom and foreboding. Never wear mourning long, unless you wish to become sad and sorrowful beyond what nature never intended.

A gentleman who met ex-President Fillmore at a social entertainment, on being struck with his vigorous appearance, was told by Mr. Fillmore that he had taken but one dose of medicine in thirty-seven years, and that was forced upon him unnecessarily. "I attribute my good health to the fact of an originally strong constitution, to an education on a farm, and to life-long habits of regularity and temperance. I never smoked or chewed tobacco. I never knew intoxication. Throughout my public life I maintained the same regular and systematic habits of living to which I had previously been accustomed. I never allowed my usual hours for sleep to be disturbed. *The Sabbath I always kept as a day of rest.* Besides being a religious duty, it was essential to health. On commencing my Presidential career I found that the Sabbath had frequently been employed by visitors for private interviews with the President. I determined to put an end to the custom, and ordered a door-keeper to

meet all Sunday visitors with an indiscriminate refusal. While Chairman of the Committee of Ways and Means in Congress, and during my entire Presidential career, my labors were always onerous and often excessive, but I never suffered an hour of sickness through them all."

Regular habits of food and exercise are as important as a good constitution to promote health. Lord Palmerston kept his mental and bodily powers in vigor till nearly ninety. For many years before his death, he used to attend the House of Commons from half-past four till it rose, any time after midnight, without leaving his place, except for a few seconds in the whole course of the night; and it never told on him in the slightest degree. He was as brisk and lively at the end of a long sitting as at the beginning. Nor was this merely a peculiarity of constitution. His strength lay in his regular habits of life, and the rule he made to spend a considerable time each day in the open air. His morning gallop was his mainstay. At night, in all weather and hours, he persisted in walking home. He had a very plain, substantial dinner at three o'clock, before he went down to the House, and that with some slight refreshments about nine o'clock, was all he required. Statesmen, now-a-days, find their labors oppressive and exhausting, mainly because they neglect the rules of hygiene, and live anyhow.

The following describes the habits of a distinguished literary veteran, William Howitt, who maintained remarkable health and vigor, both of mind and body:

"I am temperate because I have seen and felt the good policy of it. As a literary man, if I had fallen in with ordinary literary habits, I should not have been sitting here to write about the advantages of temperance. If I had lived as the majority of literary men of

this age, as 'a man about town;' if I had lived in town, and kept the usual late hours, and passed evening after evening in hot, crowded rooms, breathing the deadly poison of physical effluvia, gas, and air deprived of its ozone; if I had sat over the bottle at late suppers, foolishly called dinners; and, in short, had "jollified," as my literary cotemporaries call it, I should have been gone thirty years ago.

"As it is, I have seen numbers of literary men, much younger than myself, dying off like rotten sheep—some of them in their very early youth, few of them becoming old. They have acquired great reputations; for, if you take notice, they who collect about the press, and jollify with one another, and cry up one another as prodigies, are the men who become most popular; and 'verily they have their reward.'

"They reap much money and much temporary fame, but at what price do they purchase it? At the cost of bodily as well as mental comfort; at the cost of life itself. For my part, seeing the victims to 'fast life' daily falling around me, I have willingly abandoned the temporary advantages of such a life, and preferred less popularity, less gains; the enjoyment of a sound mind in a sound body; the blessings of a quiet, domestic life, and a more restricted, but not less enjoyable circle of society.

"I am now fast approaching my seventieth year. I cannot, indeed, say that I have reached this period, active and vigorous as I am, without the assistance of doctors. I have had the constant attendance of these four famous ones: Temperance, Exercise, Good Air and Good Hours.

"And now a word on work. Those who imagine that I only wag a goose-quill mistake a little. In that depart-

ment, indeed, I have, perhaps, done as much work as any man living. Often, in early years, I labored assiduously sixteen hours a day. I never omit walking three or four miles, or more, in all weather. I work hard in my garden, and could tire down a tolerable man at that sort of thing. During my two years' travel in Australia, when about sixty, I walked, often under a burning sun of 120 or 130 degrees at noon, my twenty miles a day for days and weeks together; worked at digging gold, in great heat, and against young, active men, my twelve hours a day, sometimes standing in a brook. I waded through rivers—for neither man nor nature had made many bridges—and let my clothes dry on my back; washed my own linen, and made and baked my own bread before I ate it; slept occasionally under the forest trees; and through it all was as hearty as a roach!

“And how did I manage all this, not only with ease, but with enjoyment! Simply because I avoided spirituous liquors as I would avoid the poison of an asp. The horrors which I saw there from drinking of spirits were enough to make a man of the least sense sober. The extent to which spirit-drinking was carried may be judged of by the unexampled fact that one year during my stay, £900,000 were paid for duty on spirits alone, and that for a population of only 250,000 souls! Well, then, I think I have a claim to recommend to my fellow-workmen abstinence from beer, spirits, and tobacco, as the great co-partner—as the very right hand of co-operation. They are all poisoners of the blood; they are all burnt-offerings unto death; they are all destroyers of the bottom of our pocket; and what is worse, destroyers of the peace of families, the constitution of men, the domestic comfort and virtue of women, the physical

stamina and the very life of children. They slay the morals of society, the intellects and the souls of men. As I read daily the police reports, and the proceedings of our criminal courts, I trace the wide-spread pestilence of spirits, beer, and tobacco, in almost every outrage and misery. All these inflame the passions or becloud the intellect; they originate robbery of masters, and robbery of all kinds. They strip their practicers of health, clothes, morals, and sanity; they convert them into madmen and devils. They fire the brain with frenzy, and arm the hand with bludgeons and knives against their own wives and children. The great bulk of the crimes and calamities of society flow from the tap and the spigot!"

The two things which conduce most to health and happiness are labor and abstinence. Spartan severities are not recommended, for they would not be conducive either to health or happiness; but that degree of labor which is not oppressive, and that quantity of food which suffices to support nature without loading the stomach. But labor and abstinence are two things which mankind take most pains to avoid. Yet what can exercise a more healthy influence, both upon the mind and body, than these? And not only should a man be temperate in food, but moderate in all things. Moderation of disposition teaches us to restrain all the evil workings of the mind—to repress jealousies, envy, anger, malice, hatred, revenge, and all those baneful passions which have ruined the health and peace of thousands. It directs us, too, to cultivate all the benevolent feelings of our nature, to moderate our desires—and above all, to do unto others as we would they should do unto us. By this means we shall ensure peace and tranquility, which

are absolutely requisite to the full enjoyment of all the faculties of the mind, and that through performance of all the animal functions of the body without any impediment, pain, or molestation. The mind thus disengaged from tumultuous passions, and the body free from disorders, render existence a happiness to us, and life an object to desire, while the loss of these blessings implies the loss of everything pleasant and delectable. "To enjoy good health," said St. Evremond, a celebrated French philosopher, "is better than to command the whole world. Health is the fountain of every blessing; for without this, we could not relish the most exquisite pleasures, or enjoy the most desirable objects." Without health we can neither be happy in ourselves, nor useful—at least in any considerable degree—to our friends, or to society. Much, undoubtedly, depends on original vigor of constitution; but, by a judicious attention to various particulars, health may, in many cases, be preserved, where it would otherwise be lost.

A little study over the laws of health on the part of the parents will prevent many a child from suffering, beside cutting short troublesome doctor bills. Never place a child under the doctor's care unless you are convinced the case is beyond your knowledge of treatment. The less medicine one takes into the system the better, I think—that is, in a generality of cases. Doctors are a good "institution," however, and I would heartily advocate the cause of "educating every person to be his own physician." "An ounce of prevention is worth a pound of cure."

The human system, though capable of great endurance and recuperative energy, often unexpectedly gives out. Men, women and children cannot toil unceasingly for a

long period of time without intervals of rest and sleep. To preserve a perfectly healthful tone of body and mind, these intervals should be longer than some suppose. Unceasing toil or excitement of mind predisposes to the neglect of the health of individuals and families. Some never wash their whole person, or know that it is necessary to preserve health. Others do this at improper times, or in an improper manner, and conclude they receive injury, not knowing that a general bath should not be taken when the system is overheated with exercise, or soon after a meal.

The object of a bath, or general washing of the whole system, is to remove the effete matter that accumulates thereon, by perspiration or exposure to dust; and as soap and warm water, with a good rubbing, is necessary to take dirt and sweat out of clothes, so we may conclude it is good to take dirt and sweat from the surface of the body. When convenient, this washing of the person should be done in the morning before breakfast, or a little before dinner, if not too fatigued. The feet of adults and children should often be soaked in warm water, with a little ashes in it, so as to loosen the scurf, that often forms painful corns, and prevents a healthful circulation in them.

The feet should be bathed in the evening, and then retire to rest. Many people injure their health and endanger their lives by washing their feet in cold water at night, after they have ceased exercise. Had they washed them thus in the morning, and exercised through the day, it might not have hurt them; but it is never safe to wash them thus at night.

Children should be taught to use the left hand as well as the right. Coarse bread is much better for children

than fine. Children should sleep in separate beds and should not wear night-caps. Children under seven years of age should not be confined over six or seven hours in the house, and that time should be broken by frequent recesses. Children and young people must be made to hold their heads up and shoulders back while standing, sitting, or walking. The best beds for children are of hair, or, in winter, of hair and cotton. From one to one pound and a half of solid food is sufficient for a person in the ordinary vocation of business. Persons in sedentary employment should drop one-third of their food, and they will escape dyspepsia. Young persons should walk at least two hours a day in the open air. Young ladies should be prevented from bandaging the chest. We have known three cases of insanity terminating in death, which begun in this practice. Reading aloud is conducive to health. The more clothing we wear, other things being equal, the less food we need. Sleeping-rooms should have a fire-place, or some mode of ventilation besides the windows. Young people and others cannot study much by lamp-light with impunity. The best remedy for eyes weakened by night use, is a fine stream of cold water frequently applied to them.

Four things indispensable to health are clothing, food, air and exercise.

While children should be allowed as much open air and exercise as possible, they should be properly and warmly clothed to insure and maintain health.

Flannel should be worn next the skin by both adults and children, as it has been scientifically demonstrated to be more conducive to health than anything else.

When the babe is born its first need is milk, and that continues to be its proper diet for many months. Then,

as its physical strength increases, the capacity of the stomach for digesting other food is better developed, but a child should always be kept on plain substantial food; and with this and warm clothing, according to the season, pure air and proper exercise, the immense amounts paid annually in doctors' bills may be saved.

An English sea captain, who made voyages to South America, and who always compelled his crew to wear flannel next the skin, never allowed them to sleep in damp places, changed the diet according to the latitude from flesh to vegetable food, and *vice versa*, and prohibited the use of alcohol on board; and while in the port of Valparaiso, during the hottest summer months there was not as much as one man on the sick list, while in five other ships lying beside him—the deaths were from thirty to fifty per day.

To secure pure air, and plenty of it when possible, sufficient fire should be kept up to allow the windows to be kept open, but in cases where this could not be, one augur hole for every member of the family should be bored in the window sashes. Gas burners, stoves, lamps, and whatever is in a state of combustion in a room, consumes the oxygen which should go to the support of human life, and the effects of the continuation of this will appear from the fact that an ordinary gas burner consumes as much oxygen as a healthy man.

Sleeping rooms must not be damp. When scrubbed the greatest care should be had to see that they are thoroughly dry before being occupied, whether by adults or children.

The mind and body of man are so knit together that they act and react upon each other. There are, perhaps, but few who are not aware that the condition of their

health gives a coloring to everything that happens to them. One person, whose health is impaired, sees his own fireside that was wont to burn so brightly and cheerily, only colored with sadness and gloom. Another of a happy and contented disposition will in the most forlorn places observe pleasant sights and hear agreeable sounds. The saddest notes in nature will to him neither be mournful nor melancholy. A sufferer from indigestion or liver complaint may pass over the most attractive landscapes on a bright May morning without experiencing any pleasurable sensations. The brightest flowers to him do not appear worth noticing, the scented air has a repulsive odor, and the sweetest minstrelsy of the grove falls like funeral notes upon his ear.

As the trees of the forest are made with strong roots to withstand the storm, so vigorous, robust health is the natural condition of man, by which he is able to withstand for years the use of rank poisons, like opium, tobacco, alcohol, &c. Take, for example, the early settlers of our country, who were obliged to labor, breathe pure air, eat plain food, dress for warmth, and forego the use of all stimulants. They soon laid up a store of health that enabled their descendants to commit physiological abuses that would soon send us to the grave, and still live to a venerable age. Health, like wealth, may be inherited, and those who inherit either are apt to be prodigal in spending.

A healthy man stands about eight chances of a thousand of dying in one year at the age of twenty-seven, about nine out of a thousand at thirty-three, about ten in a thousand at thirty-nine, eleven at forty-three, twelve at forty-five, thirteen at forty-seven, fourteen at forty-eight, fifteen at forty-nine, sixteen at fifty, seventeen at

fifty-one, eighteen at fifty-two, thirty at sixty, forty-four at sixty-five, sixty-five at seventy; hence it costs eight times as much to insure a given sum at seventy as twenty-seven.

It was stated at the meeting of the National Association of Social Science of England, that in Macclesfield, a town with a population of about 29,000, some sanitary improvements, which had been in operation but five years, had saved so far 1,015 lives and 28,300 cases of sickness. Each inhabitant had gained three years of life.

Within nine years, in one of the districts of London containing 130,000 inhabitants, according to the report of Dr. Letheby, its health officer, the annual mortality has been reduced from 3,763 to 2,900.

The Registrar-General of England, in his report for June 26, 1858, reckons the preventable deaths in the city of London alone at 15,000 every year; and yet, were New York as healthy as London, we should save more than 9,000 lives every year.

Exercise, air, good temper, and temperance, are the principal sources of growth, health, and longevity.

Learn how, what, and when to eat and drink, how and when to sleep, how to exercise and how to clothe yourself, and how to regulate and control your appetites and passions. After having learned all this, put it in practice.

The best way to insure good health, is to see that the blood is renewed and the system built up from good, digestible, nutritious food, taken without condiments or stimulants, and only in such quantities, and at such times, as nature demands.

There is this difference between those two temporal blessings, health and money: Money is the most envied,

but the least enjoyed; health is the most enjoyed, but the least envied.

A man who takes proper care of himself, and indulges in plenty of air, exercise, and, above all, recreation, ought to be in a high range of health and strength from twenty-four years to sixty-five.

Though health may be enjoyed without gratitude, it cannot be sported without loss, or regained by courage.

To retain health: Live in accordance with the laws of life; watch your own faults, and not those of your neighbors.

Hall's Journal says:—"If a man can sleep soundly, has a good appetite, with no unpleasant reminders after meals, the bodily habits being regular every day, he had better let himself alone, whether he is as big as a hogs-head or as thin and dry as a fence rail."

A man too busy to take care of his health, is like a mechanic too busy to take care of his tools.

More people die prematurely from want of care in any given year, than perish from plague, famine, pestilence and war.

It is as great mercy to be preserved in health as to be delivered from sickness.

To live long, it is necessary to live slowly.

Health is the poor man's wealth and the rich man's bliss.

He who has good health is a rich man and rarely knows it. The man with good, firm health is rich.

Good health is above wealth.

RULES FOR HEALTH.

The conditions of health are few, but imperative: 1. Pure air in abundance. 2. Good food and drink, used at the right time and in proper quantity. 3. Temperately active, and pleasant mental, moral, and social conditions. 4. To be properly clothed. 5. Sufficient undisturbed sleep. 6. Proper exercise. 7. Right bodily positions. 8. Cleanliness. 9. Rest. 10. Sunlight. 11. Temperance.

Prevention is better than cure. Use good and palatable food, not highly seasoned; vary in quantity and quality according to age, climate, weather, and occupation. Unbolted or partially bolted grains are good and sufficient food for dogs, horses, and men; but nature demands variety. As a rule, carnivora are not wholesome food. Hot soft bread digests slowly. Cooking may spoil good food. Pork should be thoroughly cooked. Avoid frying meat; boil, roast, or broil it, beginning with a high heat; but for soups, begin lukewarm. Three full meals daily are customary, and may be natural; but their number, their relative quantity and quality, and the intervals between them, are largely matters of opinion, habit, and convenience; regularity is very important. Eat something within an hour after rising, especially if obliged to labor or study; but avoid both these before breakfast if possible, and particularly exposure to malaria or contagion. Let the amount of a meal bear some relation to future needs as well as present appetite; but it is better to carry an extra pound in your pocket than in your stomach. Eat in pure air and in pleasant company; light conversation and gentle exercise promote digestion, but hard work of any kind retards it. Avoid

severe bodily or mental labor just before and for two hours after a full meal. Masticate well; eat slowly; five minutes more at dinner may give you better use of an hour afterward. Drink little at meals, and never a full glass of very hot or very cold liquid. Never wash down a mouthful. Avoid waste of saliva. Evacuate the bowels daily, and above all regularly; the best time is after breakfast: partly to be rid of a physical burden during the day, but chiefly to relieve the brain. Constipation is safer than diarrhoea. For the former, exercise, ride horseback, knead the belly, take a glass of cool water before breakfast, eat fruit and laxative food; for the latter, follow an opposite course—toast, crusts, crackers, and rice are the best food. Pain and uneasiness of the digestive organs are signs of disturbance; keep a clear conscience; rest, sleep, eat properly, avoid strong medicines in ordinary cases. Nature cures most diseases, if let alone or aided by diet and proper care. There are no miracles in medicine; let us remember that to keep and to get well generally requires only a recognition of Nature's powers, with anatomy, physiology, experience, and common sense—and we may hope that some day every man may be his own physician in all ordinary cases.

Pure atmospheric air is composed of nitrogen, oxygen, and a very small proportion of carbonic acid gas. Air once breathed has lost the chief part of its oxygen, and acquired a proportionate increase of carbonic acid gas. Therefore, health requires that we breathe the same air *once only*.

The solid parts of our body are continually wasting, and require to be repaired by fresh substances. Therefore, food, which is to repair the loss, should be taken with regard to the exercise and waste of the body.

The fluid part of our bodies also wastes constantly; there is but one fluid in animals, which is water. Therefore, *water only* is necessary, and no artifice can produce a better drink.

The fluid of our bodies is to the solid in proportion as nine to one. Therefore, a like proportion should prevail in the total amount of food taken.

Light exercises an important influence upon the growth and vigor of animals and plants. Therefore, our dwellings should freely admit the solar rays.

Decomposing animal and vegetable substances yield various noxious gases, which enter the lungs and corrupt the blood. Therefore, all impurities should be kept away from our abodes, and every precaution be observed to secure a pure atmosphere.

Warmth is essential to all the bodily functions. Therefore an equal bodily temperature should be maintained by exercise, by clothing or by fire.

Exercise warms, invigorates and purifies the body; clothing preserves the warmth the body generates; fire imparts warmth externally. Therefore, to obtain and preserve warmth, exercise and clothing are preferable to fire.

Fire consumes the oxygen of the air, and produces noxious gases. Therefore the air is less pure in the presence of candles, gas, or coal fire, than otherwise, and the deterioration should be repaired by increased ventilation.

The skin is a highly organized membrane, full of minute pores, cells, blood-vessels, and nerves; it imbibes moisture or throws it off according to the state of the atmosphere and the temperature of the body. It also "breathes," as do the lungs (though less actively). All

the internal organs sympathize with the skin. Therefore, it should be repeatedly cleansed.

Late hours and anxious pursuits exhaust the nervous system, and produce disease and premature death. Therefore, the hours of labor and study should be short.

Mental and bodily exercise are equally essential to the general health and happiness. Therefore, labor and study should succeed each other.

Man will live most healthily on simple solids and fluids, of which a sufficient but temperate quantity should be taken. Therefore, strong drink, tobacco, snuff, opium, and all mere indulgencies should be avoided.

Sudden alterations of heat and cold are dangerous (especially to the young and aged). Therefore, clothing, in quantity and quality, should be adapted to the alterations of night and day, and of the seasons. And therefore, also, drinking cold water when the body is hot, and hot tea and soups when the body is cold are productive of many evils.

Moderation in eating and drinking, short hours in labor and study, regularity in exercise, recreation, and rest, cleanliness, equanimity of temper and equality of temperature, these are the great essentials to that which surpasses all wealth—*health of mind and body*.

Dr. Hall says: "All who are now in health can keep well, and three out of four of those suffering from the common transient ailments of life can be perfectly cured by giving a steady, judicious attention to the three following rules:

"Never eat between meals, nor take any thing for supper but a single piece of cold bread and butter, and a glass of water, or one cup of any kind of hot drink.

"Secure one regular, free, and full daily action of the

bowels every morning after breakfast, by the use of your ordinary food ; and to this end, do not leave your home under any pretense, for a single moment, until there is an inclination to stool ; then, as you value a long and healthful life, do not defer the call for a single second of time, for any thing short of a fire or a fit ; rather cherish the inclination. If it does not come within half-an-hour of the regular time, solicit nature. If unsuccessful, do not eat an atom of any thing until the passage is secured, or at least until next morning. Meanwhile, drink as much cold water, or hot tea, as you desire, and keep exercising (tenfold better if in the open air) to the extent of sustaining a scarcely perceptible perspiration for the greater part of the day ; for it must strike you, that if food is steadily passed into the mouth, and there is no corresponding outlet, harm is absolutely inevitable. If, during the second day, the bowels do not move, call in a regularly educated physician.

“Cool off very slowly after all forms of exercise ; the neglect of this lights up the fires of three-fourths of all the diseases which afflict humanity. Cool off slowly by putting on more clothing than while exercising, instead of laying aside some, even a hat or a bonnet ; go to a closed room rather than sit or stand out of doors ; sit by a good fire rather than an open window ; at all events keep in motion in such a way as to allow the perspiration, or any extra warmth, to disappear very gradually indeed.

“If a fourth rule were added, it should be to keep one end of the body, the feet, always dry and warm, and the other, the head, cool and clean, by spending two minutes in midwinter, and five or more in midsummer, in washing, with ordinary cold water, the scalp, if the hair is

short, the ears, neck, throat, arm-pits, upper part of chest and arms; rub dry briskly, dress quickly, and go to breakfast.

“These same observances (the first three) will incalculably mitigate every disease to which mortal man is subject—will moderate every pain, and will soothe every sigh; and a pity is it beyond expression, that every human creature does not know and habitually practice them.”

Rules for Winter: Have your sleeping room well ventilated. Pure air is just as necessary in cold weather as in warm. If you shut yourself up in a close, warm room through the night, you will be very apt to take cold the next day.

Have bed-clothing enough to keep you comfortably warm, but no more, as an excess will prove burdensome and weakening. Have more clothing over the feet and legs than over the body.

Never go to bed with cold or damp feet. Always warm and dry them in some way. Dry them by rubbing with a towel or before a fire. Warm them by exercise, if able. If not, before a fire, or by putting them in hot water, then in cold for a moment, followed by a brisk rubbing.

Before exposing yourself to the cold for any length of time, get thoroughly warmed up, not by hot or stimulating drinks, but by exercise or by a fire. By exercise is best, if not to the extent of perspiration or fatigue.

In going from a warmer to a colder atmosphere, always keep the mouth closed, and breathe through the nostrils, that the air may be partially warmed before reaching the lungs, thus preventing those sudden shocks and chills which frequently end in pleurisy, pneumonia, etc.

Avoid standing, sitting, or lying in a draught of cold

air. Many a person has caught a cold which resulted in an incurable consumption by standing in a hall or doorway waiting from ten minutes to an hour for some gossiping friend to say the last word.

Protect the feet from cold and dampness by loose, warm, thick-soled shoes and an abundance of clothing for the legs and ankles.

Avoid compression by dress of any part of the body or limbs, as it interferes with the circulation of the blood, results in cold extremities, and congestion of the head or some of the internal organs.

Avoid bathing in cold water or in a cold room, unless there is a full and quick reaction. Chilliness after a bath is a sure indication that it was not properly taken.

You can walk as long as you please with damp feet. So long as you keep in motion, there is little danger of taking cold; but be sure and change wet shoes and stockings as soon as ready to sit down, rubbing the feet perfectly dry, or if bed time, heat the feet thoroughly before lying down.

Never sit or sleep with the head and shoulders in the draught of an open door or window. See that the lower limbs are more carefully covered when lying down than the body. Have an extra blanket on the foot of the bed or in easy reach, in case of any sudden change in the weather during the night. Do not stand still on a corner, to talk, after having exercised till warm or heated. Avoid sitting in an open door or window in coach or car. It is the surest receipt for severe colds that we know of. Never put on a new boot or shoe when going for a walk or visit, unless anxious to test the quality of your patience and endurance.

Rise early, and take a good walk or ride before break-

fast. Do not eat breakfast immediately on rising. The stomach is not in a condition to receive food. There is a great virtue in fasting early in the day, and at evening. Let the breakfast and supper be light—reserving strong food, as meat, etc., for the middle of the day. A good rule would be: rise at 7—breakfast at 8 or 9—dinner at 1—a light tea at 6. Eat slowly, masticate thoroughly and drink in sips. Use very little fluids during meals. Liquids should be taken an hour after meals—then they assist digestion.

The foundations of the national health may be sapped in so many ways, that the catalogue is as long as it is dismal. Bad air, bad food, bad clothing, deficient fuel, too long hours at work, intemperance, all excesses, excessive exercise, excessive study, fanaticism, gluttony, idleness, late hours, intermarriage among unfit persons, depressing passions—as gambling, whether in hells or on the stock market—overcrowding and bad lodgings, bad dwellings, or dwellings on unfit sites, all engender disease, and deteriorate the race. They produce struma, rickets, gout, hypochondriasis, and many other diseases, with consequent loss of power, imperfect work, moroseness, and misery to others besides those affected, in an ever-expanding circle.

We may venture to assert that the principal secrets of health are early rising, exercise, personal cleanliness, and leaving the table unoppressed.

When a family rises early in the morning, we conclude the house to be well governed, and the inmates industrious and healthy.

With respect to exercise, there is a simple and benevolent law of nature—"Earn, that you may enjoy." In other words, "Secure a good digestion by exercise."

As much, perhaps, may be said concerning ablution as exercise. "Dispel the ill humors from the pores." Cleanliness is a virtue, though not the first in rank, one of the first, at least, in necessity.

On the subject of temperance, that sturdy moralist, Johnson, speaking of a book in which it was recommended, observed, "Such a book should come out every thirty years, dressed in the mode of the times." "He that would eat much," says the proverb, "must eat little." Let us not, however, confound temperance with starvation—on the contrary, it is simply moderation. We may be intemperately abstemious, as well as intemperately luxurious.

From all that has been said and written on the subject, from the experience of every age and clime, we may conclude, that "they are the most healthy, who have nature for their cook, hunger for their caterer, who have no doctor but the sun and fresh air, and no other physic than temperance and exercise."

A neat, clean, fresh-aired, sweet, cheerful, well-arranged house exerts a moral influence over its inmates, and makes the members of a family peaceable and considerate of each other's feelings and happiness. The connection is obvious between the state of mind thus produced and respect for others, and for those higher duties and obligations which no laws can enforce. On the contrary, a filthy, squalid, noxious dwelling, in which none of the decencies of life are observed, contribute to make its inhabitants selfish, sensual, and regardless of the feelings of others; and constant indulgence of such passions renders them reckless and brutal.

OUR HABITS.

Our habits are ordinarily the predisposing causes of our ill-health and sickness. The bad feelings we experience are the result of cause. Often by search we might determine the cause, then remove it. By ceasing to do evil, the effects will cease. All uneasy, unpleasant sensations and aches, are signs that organs are acting abnormally. It is the expression of organs when forced to do that which it is not their nature to do.

Pain is the pathological language of organs. It always indicates diseased action. Disease is the misuse of our power. It is an effort to remedy wrong, and is a waste of vitality. It is not the enjoyment of the good gift of life, but the abuse of it, the consequence of bad habits. What a pity that there should ever exist a necessity for such an expenditure of power. Those act wisely who pursue a course that conserves the vital force. Yet there are multitudes of habits that extravagantly dissipate this irrecoverable, precious treasure. Every unphysiological habit makes a draft upon life, incurs a debt that will have to be paid sooner or later. The law is inexorable—no mixture of mercy. Transgressors' ways are hard. In disease, the circulation is always unbalanced.

There are some unhygienic habits, however, which do not express themselves unpleasantly to the animal sensations, but to the contrary—pleasantly, nevertheless are slowly and surely exhausting the vital resources. Some substances possess properties which, when introduced into the circulation in small quantities, increase the circulation slightly and equally throughout all the body. They do not disturb the functions so as to cause painful sensations, but they cause the vital machinery to run

faster than is normal. This intensifies the feelings, and we frequently hear those who are under the influence of these things saying, we know they do us good, for we feel so good. So when the first effects of the use of these things are subsiding, and the feelings begin to lower, it is a call for more; more is taken, and the good feeling is kept up by this unnatural strain on the vital powers. And under the pleasing delusion of good feelings, the constitution is undermined, the premature decay and death are brought on, without apparent disease.

The moderate use of the articles, tea, coffee, tobacco, alcohol, and opium, has these effects. A more abundant use has more disastrous consequences, causing disordered functions, with diseased sensations of every type and variety according to the constitution and temperament of the user. Strong, hardy constitutions can bear the use of tea a long while with seeming impunity; but it tells unmistakably upon the finely-organized, delicately-constituted young person, by causing morbid sensations, and morbid perceptions. What applies to tea is equally, or more so, applicable to coffee, tobacco, alcohol and opium. The let-alone principle is a good one to be governed by in regard to these things, if we would prolong life and see good days.

If people would only do a thing as soon as they were convinced it was the right thing to do, ministers would have an easier time and physicians a poorer practice. In these matters of health, there is not so much need to teach ignorant people the rules of health, as to persuade intelligent people to practice them. We are all of us sinners in some of these respects. We eat mince pie and fried cakes before going to bed, in the face of the absolute certainty that we shall be twisted with bad dreams

before morning, and the dyspepsia before middle life. We run out of doors in mid-winter bare headed, although we know we are liable to catch a cold that will inconvenience us more than to put on our hat every time we step out all winter. We give to work the hours that belong to sleep, with broken-down people on every hand to warn us of its folly. We feed our children candy and high-seasoned dainties, knowing that the appetites thus provoked are the first steps in the path that leads to tobacco, strong drink and all sensual self-indulgence. We go about with wet feet, certainly inviting rheumatisms and fevers. We neglect to take sufficient daily exercise, while we see monuments to such folly in half the ministers and book-keepers of our acquaintance. Or we mercilessly work our bodies, day in and day out, like team-horses, although we know that we shall be round-shouldered and rheumatic by the time the farm is paid for.

If anything testifies to the patience of the Lord, it is his forbearance in our wanton abuse of the bodies He has so wonderfully made.

CULTIVATE CHEERFULNESS.

If we but make up our minds to it, we can be cheerful under any circumstances, no matter how adverse and discouraging they may appear for the time being. And by how much we do this, by so much we increase our own and the happiness of those around us. Charles Lamb used to say that "a laugh is worth a thousand groans in any state of the market." Dr. Johnson maintained that the habit of looking on the bright side of everything was "better than \$5,000 salary a year."

Cheerfulness and diligence, says Samuel Smiley, are the life and soul of success, as well as of happiness; perhaps the very highest pleasure in life consists in clear, brisk, conscience-working. Bishop Hall wrote: "For every bad there might be a worse; and when one breaks his leg, let him be thankful that it was not his neck." There are few, if any, persons who find things just as they would like to have them. Annoyances, vexations, and trials, are incident to the life of every one. We may allow them to constantly fret and irritate us, souring our dispositions, and making us unhappy generally; or we can rise above them and be cheerful in spite of them.

It should be the aim of all to cultivate a habit of cheerfulness; to look upon the virtues and not the faults of those around them; to refrain from brooding over the past, and study how the future may be bright and cheery. We should keep depression and low spirits at a distance, and not permit ourselves to indulge in melancholy moods or repinings because matters are not so and so.

In this busy, bustling period, there is great danger of men being worried by the friction and wear and tear of business life into a chronic condition of irritability and peevishness. In their eagerness to acquire wealth, they overtax their energies, encroach upon the necessary hours of sleep, and become fretful, fidgety, and waspish. Those in large cities particularly should be on their guard against falling into this condition of constant anxiety and apprehension lest something is going wrong. It is an excellent resolution which some make to leave the "shop" behind them when returning home at night, to dispel all thoughts of the day's cares and anxieties, and surrender themselves to the soothing, quieting in-

fluences which should be found in every family circle. Whoever will do this is bound to be cheerful. Rest, recreation, and participation in amusement, are designed by our Creator to counteract the effect of hard labor on mind and body. Whoever refuses to recognize this fact, and conform to it, will suffer both mentally and physically. How much better it is for one to pass down to old age with a limited competence, feeling that he has enjoyed life and contributed to the enjoyment of others, than to secure riches at the sacrifice of all the better instincts of nature and all enjoyment! There is no more pitiable object in the world than the sordid, crabbed old man who has devoted a life-time to money-getting simply, and sacrificed every trait of manhood in his endeavors.

As cheerfulness is essential to happiness, so regular habits and plenty of sleep are essential to cheerfulness. We cannot violate physical laws with impunity. The Almighty has arranged in his physical autonomy that his creatures must have so much rest and nourishment in order to maintain health, and mental elasticity and buoyancy. There is such an intimate relation existing between the body and mind, that the former cannot be out of gear without disarranging the latter.

ADDRESS TO YOUNG MEN.

Amid the exuberance of this country, our dangers spring from abundance rather than from scarcity. Young men, especially young men in our cities, walk in the midst of allurements for the appetite. Hence, health is imperiled; and so indispensable an element is health in all forms of human welfare, that whoever invigorates his

health has already obtained one of the great guaranties of mental superiority, of usefulness, and of virtue. Health, strength, and longevity, depend upon immutable laws. There is no chance about them. There is no arbitrary interference of higher powers with them. Primarily our parents, and secondarily ourselves, are responsible for them. The providence of God is no more responsible, because the virulence of disease rises above the power of all therapeutics, or because one quarter part of the human race die before completing the age of one year—die before completing one seventieth part of the term of existence allotted to them by the psalmist—I say the providence of God is no more responsible for these things, than it is for picking pockets or stealing horses.

Were a young man to write down a list of his duties, health should be among the first items in the catalogue. This is no exaggeration of its value; for health is indispensable to almost every form of human enjoyment; it is the grand auxilliary of usefulness; and should a man love the Lord his God, with all his heart and soul and mind and strength, he would have ten times more heart and soul and mind and strength, to love him with, in the vigor of health, than under the palsy of disease. Not only the amount, but the quality of the labor which a man can perform, depends upon his health. The work savors of the workman. If the poet sickens, his verse sickens; if black, venous blood flows to an author's brain, it beclouds his pages; and the devotions of a consumptive man scent of his disease as Lord Byron's obscenities smell of gin. Not only "lying lips," but a dyspeptic stomach, is an abomination to the Lord. At least in this life, so dependent is mind upon material organization—

the functions and manifestations of the soul upon the condition of the body it inhabits—that the materialist hardly states *practical results* too strongly, when he affirms that thought and passion, wit, imagination, and love, are only emanations from exquisitely organized matter, just as perfume is the effluence of flowers, or music the ethereal product of an Æolian harp.

In regard to the indulgence of appetite, and the management of the vital organs, society is still in a state of barbarism; and the young man who is true to his highest interests must create a civilization for himself. The brutish part of our nature governs the spiritual. Were we to see a rich banker exchanging eagles for coppers by tale, or a rich merchant bartering silk for serge by the pound, we should deem them worthy of an epithet in the vocabulary of folly. Yet the same men buy pains whose prime cost is greater than the amplest fund of natural enjoyments. Their purveyor and market-man bring them home headaches, and indigestion, and neuralgia, by hamper-fulls. Their butler bottles up stone, and gout, and the liver complaint, falsely labeling them sherry, or madeira, or port, and the stultified masters have not wit enough to see through the cheat. The mass of society look with envy upon the epicure who, day by day, for four hours of luxurious eating, suffers twenty hours of sharp aching; who pays a full price for a hot supper, and is so pleased with the bargain that he throws in a sleepless and tempestuous night, as a gratuity. English factory children have received the commiseration of the world, because they were scourged to work eighteen hours out of the twenty-four; but there is many a theoretic republican who is a harsher Pharaoh to his stomach than this—who allows it no more resting

time than he does his watch, who gives it no Sunday, no holiday, no *vacation*, in any sense.

Our pious ancestors enacted a law that suicides should be buried where four roads meet, and that a cart-load of stones should be thrown upon the body. Yet, when gentlemen or ladies commit suicide, not by cord or steel, but by turtle-soup or lobster-salad, they may be buried in consecrated ground, and under the auspices of the church, and the public are not ashamed to read an epitaph upon their tombstones false enough to make the marble blush. Were the barbarous old law now in force that punished the body of the suicide for the offense which his soul had committed, we should find many a cemetery at the cross-roads. Is it not humiliating and amazing, that men, invited by the exalted pleasures of the intellect, and the sacred affections of the heart, to come to a banquet worthy of the gods, should stop by the wayside to feed on garbage, or to drink of the Circean cup that transforms them to swine?

If a young man, incited by selfish principles alone, inquires how he shall make his appetite yield him the largest amount of gratification, the answer is, *by temperance*. The true epicurian art consists in the adaptation of our organs not only to the highest, but to the longest enjoyment. Vastly less depends upon the table to which we sit down, than upon the appetite which we carry to it. The palled epicure, who spends five dollars for his dinner, extracts less pleasure from his meal than many a hardy laborer who dines for a shilling. The desideratum is, not greater luxuries, but livelier *papillæ*; and if the devotee of appetite would propitiate his divinity aright, he would not send to the Yellowstone for buffaloes' tongues, nor to France for *pate de fois gras*,

but would climb a mountain, or swing an ax. With health, there is no end to the quantity or the variety from which the palate can extract its pleasures. Without health, no delicacy that nature or art produces can provoke a zest. Hence, when a man destroys his health, he destroys, so far as he is concerned, whatever of sweetness, of flavor, and of savor, the teeming earth can produce. To him who has poisoned his appetite by excesses, the luscious pulp of grape or peach, the nectarious juices of orange or pine-apple, are but a loathing and a nausea. He has turned gardens and groves of delicious fruits into gardens of ipecac and aloes. The same vicious indulgences that blasted his health, blasted all orchards and cane-fields also. Verily, the man who is physiologically "wicked" does not live out half his days; nor is this the worst of his punishment, for he is more than half dead while he appears to live.

Let the young man, then, remember that, for every offense which he commits against the laws of health, nature will bring him into judgment. However graciously God may deal with the heart, all our experience proves that he never pardons stomach, muscles, lungs, nor brain. These must expiate their offenses *un*-vicariously. Nay, there are numerous and obvious cases of violated physical laws, where nature, with all her diligence and severity, seems unable to scourge the offender enough during his life-time, and so she goes on plying her scourge upon his children and his children's children after him, even to the third and fourth generation. The punishment is entailed on posterity; nor human law, nor human device, can break the entailment. And in these hereditary inflictions nature abhors alike the primogeniture laws of England and the Salic laws of France.

All the sons and all the daughters are made inheritors; not in aliquot parts; but, by a kind of malignant multiplication in the distemper, each inherits the whole.

Late hours, irregular habits and want of attention to diet, are common errors with most young men, and these gradually, but at first imperceptibly, undermine the health, and lay the foundation for various forms of disease in after life. They frequently sit up as late as twelve, one, or two o'clock without experiencing any ill effects; they go without a meal to-day, to-morrow eat to repletion, with only temporary inconvenience. One night they will sleep three or four hours and the next nine or ten, or one night, in their eagerness to get away into some agreeable company they will take no food at all, and the next, perhaps will eat a hearty supper, and go to bed upon it. These are common to the majority of young men, and are, as just stated, the cause of much bad health in mature life. Indeed, nearly all the shattered constitutions with which too many are cursed, are the result of a disregard to the plainest precepts in early life.

A very curious and interesting table might be made by a thoughtful physiologist and hygienist, showing each person where his strength goes; and I am not sure that a young man could do a better service for himself than to seek the counsel of some wise physiologist, tell him frankly all his habits, and have such a table prepared, not only to guard him against excess, but to show him his weak places, and point out where he will be most likely to fail. Some of these tables would, no doubt, read very much as follows:

Spent in digesting a big dinner, which the body did not need, force sufficient to raise twenty tons one foot

high. Spent in getting rid of several drinks of wine and brandy, force sufficient to raise twenty tons one foot high. Spent in smoking six cigars, force sufficient to raise ten tons one foot high. Spent in keeping awake all night at a spree, force sufficient to raise twenty tons one foot high. Spent in breathing bad air, force sufficient to raise fifteen tons one foot high. Spent in cheating a neighbor out of \$30 in a business transaction, force sufficient to raise fifteen tons one foot high. Spent in reading worthless books and newspapers, force sufficient to raise five tons one foot high. Spent in hesitation, doubt and uncertainty, force sufficient to raise five tons one foot high. Total—120 tons one foot high. Left for practical and useful labor only enough to raise fifty-five tons one foot high, or to do less than one-third of a day's work.

Sometimes there would be a draft on the original capital of considerable force, so there would not be enough to keep the body warm, or the food well digested, or the muscles plump and full, or the hearing acute, or the eyes keen and bright, or the brain thoughtful and active. Very often a single debauch would use up the entire available power of the whole system for a whole week or month. There is no end to the multitudinous ways in which we not only spend our working capital, but draw on the original stock, that ought never to be touched, and the result is imperfect lives, rickety bodies, no abilities to transmit to our children good health and long life, much physical suffering and premature decay, with all the ends of life unaccomplished. How sad is all this! How terrible to be born into this world and leave it without adding something to its wealth, its virtue, and its progress.

Who wastes his youth, beggars himself for life. Youth is the time to store the intellect with knowledge, and whoever fails to lay the foundation for scientific and literary attainments then, if he has the opportunity, is never likely to do so, or should he attempt it he never can make up the loss from early negligence. Youth is the time to form a virtuous character. The mind is then open; the heart is then receptive; all the affections are in a plastic state to be moulded by the influences of heaven and earth, given by divine providence to elevate and save; and whoever does not then lay up the "rewards" through which God may be present in the inmost of man, is not likely to do so afterwards, or attempting it, must come far short of what it was his privilege to become. Youth is the time to acquire habits of industry and economy, and knowledge of some business, art or profession by which independence, wealth, fame and power may be acquired; and whoever fails to improve his opportunities is a failure forever. "Heaven lingers about us in our infancy," the poet says: but what is lost in youth can never be regained. Time is not long enough to make it good; and eternity will roll on its endless cycles without bringing that soul to the point where it should be.

Cardinal de Salis, who died 1785, aged 110 years, said:—*By being old when I was young, I find myself young now I am old.* I led a sober and studious, but not a lazy or sedentary life. My diet was sparing, though delicate; I rode or walked every day, except in rainy weather, when I exercised within doors for a couple of hours. So far I took care of the body; and as to the mind, I endeavored to preserve it in due temper by a scrupulous obedience to divine commands. By these means I have

arrived at the age of a patriarch, with less injury to my health and constitution than many experience at forty.

We all know here and there men and women who seem to be always young. We meet them at a certain epoch of their lives, and after years of great changes and toils, and various experiences and discipline, we meet them again, expecting to find them worn and discouraged—in a measure overcome in the war which they have been waging. On the contrary, they have the mien and port of victors; what we call trouble has but made them strong; and the soul, in making its brave fight against its enemies, has gained firmness and fineness and reserve force, independent vigor and vital power, just as the body gets muscle and red blood by manly action. Other men and women lose faith and lose heart; they lose the enthusiasm of their early years, and what is worse, they lose belief in that enthusiasm; but these of whom we speak give up nothing of youth, save its froth; the rich wine of their nature grows richer from age; not one chord of their inner life is strained or broken; the years have only been to them as skillful tuners, keying up one note and modifying another, till all discord has disappeared.

What is the secret of the clear eye and smile around the lips so frank and joyous that it is almost infantile? What is the secret of their unfailing belief in right, of their untiring defense of what men call romance? Is it not because they live on a plane so high that they are able to get, at first hand, constant supplies of life from that spiritual realm where youth is eternal? The divine essence which we call soul, is, so long as it keeps in communication with its source, independent of chance or change. Insomuch as, direct from God, it can animate

inert matter, by keeping in line with God, it is forever superior to matter. These men, then, who never grow old, live where they can get a constant influx of life from God. So powerful is this divine energy that one glance of the soul into the realm where are the sources of life, will counteract the thousand trials incident to its present temporary improvement. Our bodies must, according to the laws of nature, fall to decay; but blessed are they who keep up such an illumination within, that the building is glorified till the very moment of its fall.

FAST LIVING

Fast living is an active and fascinating habit, particularly to the young. There are few warm blooded young men who would not live fast if they could afford to. The lack of means alone restrains them. It seems so delightful to rattle over the pleasant first ten years of adult life from twenty to thirty, at a two-forty pace, rather than jog along at a rate that permits all the fast teams to pass you. But old men think differently. They know that the fast liver rattles away his bloom and youth before he is ready to part with it, while his plodding companion of the same age is still young. He goes up the ascent with the speed and dash of a fleet roadster; but he goes down the decline on the other side with the speed of a galloping consumption. He gathers his joys long before they are ripe, and like children who have gorged themselves with green fruit, he must suffer the pains and pangs, the penalty of the transgressions. He grows old and weary, and querulous in spirit and habit, while he is still young in years. There are wrinkles on his face;

there are twitches in his joints; there are angry and painful swellings on his knuckles; his hands quake and his limbs totter; and he hobbles down the home stretch an object of pity to those whom he dazzled with the brilliancy of his first setting out, and filled with remorseful reflections over the folly that squandered the riches of life in youth, and left no strength of muscle or warmth of blood to cheer and sustain him in dismal winter.

If the young man is wise, he will be content to go slow up the ascent, and husband his vigor of body and mind for the latter part of the race. The innate joys of youth, its hope and freedom and buoyancy may suffice for that period of life, without the fierce excesses and profligacies which make up the fast living. Temperance and moderation to the young appear insipid and prosy; but they are conservators of the powers which the young will need when they become old. To lay up money for old age is esteemed the height of worldly wisdom; but to carry the innocence and freshness, and some of the vigor and health of youth into old age, is a wiser and better thing still.

According to statistics, the average length of life of a fast horse is ten years; of a fast woman, seven; of a fast man, six. First, they founder and loose their wind, and then there is an end to the race.

Good health is so necessary to enjoyment of life, to sound thinking, to prudent and successful working, that every man's prime duty is to secure sound health. There are thousands of people who pass for healthy men who are far from being so. It is true that they need no physician, that they require no medicine, that they lose no time, but keep on regularly with their business. But they do not get out of their body half of the work of

which it is capable, and they altogether fail of that enjoyment which the Creator has provided for perfectly healthy persons.

A man may have neither dropsies, fevers, nor any marked disease, nor even be sick, and yet he may lack tone, strength, buoyancy and cheerfulness of spirits, and that courage which is apt to go with full health. He may drag himself through a business operation consuming hours, when a half hour only would be necessary if one was sharp and clear. With a dull axe one may hack and pound upon a log four times as long as would be needed with a sharp axe. Our faculties are tools. They must be well tempered, and be kept with a cutting edge.

If a man suffers depression of spirits when he first wakes in the morning, and requires two or three hours before he gets warmed up to his work, he surely is not in good health. If one suffers from drowsiness after meals, if at evening all his powers are flagging, he is not in good condition. A real healthy man is bright and cheerful at waking in the morning, goes to his meals with good appetite, and thinks no more about his food after it is eaten than a mill does when the grain is in the hopper; works and thinks with alacrity, directness and efficiency; looking before him all the time, with gentle hopefulness. The natural and healthful action of faculties and organs is pleasurable. A gentle pleasurable is a sign of health. The absence of it marks either disease or an under-tone of the system, out of which diseases are easily developed.

We will refer to several of the most frequent causes of a low state of the human system.

First, is over-eating and drinking. When boys are

growing and the body is building itself at a rapid rate, the appetite, though voracious, is natural and healthful. But after the age of twenty-five, growth is usually at an end, and all that the system then needs is a resupply of material wasted day by day in labor. Those who are subject to hard material labor, and in the open air, require and will bear more food, than those who are sheltered, sedentary, and subject to very moderate exertion. If men eat more than they need, all the digestive apparatus is overworked; the various parts of the body are over-nutriated, the brain is dulled, the stomach is at length enough impaired to keep up a complaining state.

The higher the civilized conditions of society, the more apt are men to suffer impaired vigor from over-feeding, because viands are multiplied, are made more tempting—because men have more leisure, and eating becomes a luxury as well as a necessity—because people are less addicted to work, get less fresh air, and live less in sunlight.

Every day we see men of good morals, of position in society, of estimable qualities, who are inferior or unhappy for no other reason than that they are not wise in eating. We are sometimes tempted to say to clergymen,

“Are you not conscious of being often tempted of the devil?”

“Yes, sir; but why do you ask?”

“We have seen him so often around you at meal-times, in the shape of beef, puddings, and such like, and we have noticed that you are a long way too familiar with him.”

There is many an irritable man, full-blooded, florid in face and quarrelsome, who would become peaceful and contented if all meat rations were knocked off.

Another fountain of ill health is found in the improper indulgence of man's passions. We do not allude to those debaucheries which vice keeps, and which the word of God marks as the Ways of Death. Those unhallowed lusts drown men in perdition, or consume them as in fire.

But thousands are living in proper social relations without a thought of evil, who are, notwithstanding, from want of proper knowledge, over-indulgent, and by reason of excess, they are enfeebled, despondent, run down. Blanch and waxy-faced men abound, whose whole life is unstrung, and gradually sacrificed to the pleasures of passion, which are only not vicious because they are indulged in legal relations. The delicacy of the theme makes teachers averse to speak publicly of it, and thousands are sinking into consumptions, and debilities, and paralysis, because men have not the courage to tell them that, like a cask of wine hid away in the cellar, worm-pierced, they are leaking to death!

The last cause which we shall specify is over-cerebral excitement and under-sleep. But it will not be needful, perhaps, to do more than to direct our readers to the chapter on sleep.

Wasteful indulgence in eating and drinking, wasteful indulgence in pleasurable lust, and wastefulness of the brain by over-work and under-sleep—these three causes lower the working power of society, we should think, one full third. And although practiced in the interest of enjoyment, they diminish the real enjoyment of society, we suspect, a full half.

The deadliest foe to man's longevity is an unnatural and unreasonable excitement. Every man is born with a certain stock of vitality, which cannot be increased, but which may be husbanded or expended as rapidly as

he deems best. Within certain limits he has a choice, to live fast or slow, to live abstemiously or intensely, to draw his little amount of life over a single space, or condense it into a narrow one; but when his stock is exhausted he has no more. He who lives abstemiously, who avoids all stimulants, takes light exercise, never overtasks himself, feeds his mind and heart on no exciting material, has no debilitating pleasure, lets nothing ruffle his temper, keeps his "account with God and man squared up," is sure, barring accidents, to spin out his life to the longest limit which it is possible to attain; while he who lives intensely, who feeds on high-seasoned food, whether material or mental, fatigues his body or brain by hard labor, exposes himself to inflammatory diseases, seeks continual excitement, gives loose reign to his passion, frets at every trouble, and enjoys little repose, is burning the candle at both ends, and is sure to shorten his days.

That the effects of worry are more to be dreaded than those of simple hard work is evident from noting the classes of persons who suffer most from the effects of mental overstrain. The casebook of the physician shows that it is the speculator, the betting man, the railway manager, the great merchant, the superintendent of large manufacturing or commercial works, who most frequently exhibits the symptoms of cerebral exhaustion. Mental cares, accompanied with suppressed emotions, occupations most liable to great vicissitude of fortune, and those which involve the bearing on the mind of a multiplicity of intricate details, eventually break down the lives of the strongest. In estimating what may be called the staying powers of different minds under hard work, it is always necessary to take early training into account. A

young man, cast suddenly into a position involving great care and responsibility, will break down in circumstances in which, had he been gradually habituated to the position, he would have performed its duties without difficulty. It is probably for this reason that the professional classes generally suffer less from the effects of overstrain than others. They have a long course of preliminary training, and their work comes on them by degrees; therefore when it does come in excessive quantity, it finds them prepared for it. Those on the other hand who suddenly vault into a position requiring severe mental toil, generally die before their time.

Were the question asked of each individual whether he would prefer to live or die early, it is not difficult to guess which way the votes would run; but it is, nevertheless, a paradox that practically nine out of every ten people act as though their sole object was to ruin their health, and shuffle off their mortal coil as soon as possible.

Everything which tends to discompose or agitate the mind, whether it be excessive sorrow, rage or fear, envy or revenge, love or despair—in short, whatever acts violently on our mental faculties, tends to injure the health.

Of one hundred men who are born, fifty die before the tenth year, twenty between the tenth and twentieth, ten between the twentieth and thirtieth, six between the thirtieth and fortieth, five between the fortieth and sixtieth; therefore, six only live to be above the age of sixty.

Nothing can tend more to the health of the body than the tranquility of the mind, and the due regulation of the passions.

It is believed that a cold climate conduces to longevity.

ADVICE TO YOUNG LADIES, BY DR. DIO LEWIS.

Now, ladies, I will preach to you just a little sermon. I don't often preach, but in this case nothing but a sermon will do.

Firstly, you are perfect idiots to go on in this way. Your bodies are the most beautiful of God's creations. In the Continental galleries, I always saw groups of people gathered about the pictures of women. It was not passion; the gazers were just as likely to be women as men; it was because of the wondrous beauty of woman's body.

Now stand with me at my office window, and see a lady pass. There goes one! now isn't that a pretty looking object? A big hump, three big lumps, a wilderness of crimps and frills, a hauling up of the dress here and there, an enormous, hideous mass of false hair or bark piled on top of her head, surmounted by a little flat, ornamented with bits of lace, birds' tails, etc., etc. The shop windows tell us, all day long, of the paddings, whalebones, and steel springs, which occupy most of the space within that outside rig.

In the name of all the simple, sweet sentiments which cluster about a home, I would ask, how is a man to fall in love with such a piece of compound, doubled, twisted, touch-me-not artificiality, as you see in that wiggling curiosity?

Secondly, with that wasp waist, squeezing your lungs, stomach, liver, and other vital organs, into one-half their natural size, and with that long trail dragging on the ground, how can any man of sense who knows that life is made up of use, of service, of work, how can he take such a partner? He must be desperate indeed, to unite

himself for life with such a fettered, half-breathing ornament!

Thirdly, your bad dress and lack of exercise lead to bad health, and men wisely fear that instead of a help-mate they would get an invalid to take care of. This bad health in you, just as in men, makes the mind as well as the body fuddled and effeminate. You have no power, no magnetism! I know you giggle freely, and use big adjectives, such as "splendid," "awful," but then this don't deceive us; we see through it all. You are superficial, affected, silly; you have none of that womanly strength and warmth, which are so assuring and attractive to man. Why, you have become so childish and weak-minded that you refuse to wear decent names even, and insist upon baby names. Instead of Helen, Margaret, and Elizabeth, you affect Nellie, Maggie and Lizzie. When your brothers were babies you called them Bobby, Dicky, and Johnny; but when they grow up to manhood, no more of that silly trash if you please. But I know a woman of 25 years, and she is as big as both of my grandmothers put together, who insists on being called Kitty, and her real name is Catharine, and although her brain is big enough to conduct affairs of state, she does nothing but giggle, cover up her face with her fan, and exclaim once in four minutes, "Don't now, you are real mean."

How can a man propose a life partnership to any such a silly goose? My dear girls, you must, if you would get husbands, and decent ones, dress in plain, neat, becoming garments, and talk like sensible, earnest sisters.

You say that the most sensible men are crazy after the butterflies of fashion. I beg your pardon, it is not so. Occasionally a man of brilliant success may marry

a silly, weak woman, but to say as I have heard women say a hundred times, that the most sensible men choose women without sense, is simply absurd. Nineteen times in twenty sensible men choose sensible women. I grant you that in company they are very likely to chat and toy with those over-dressed and forward creatures, but they don't ask them to go to the altar with them.

Fourthly, among the young men in the matrimonial market, only a very small number are independently rich, and in America such very rarely make good husbands. But the number of those who are just beginning in life, who are filled with a noble ambition, who have a future, is very large. These are worth having. But such will not, they dare not, ask you to join them, while they see you so idle, silly, and so gorgeously attired. Let them see that you are industrious, economical, with habits that secure your health and strength, that your life is earnest and real, that you would be willing to begin at the beginning in life with the man you would consent to marry, then marriage will become the rule, and not, as now, the exception.

A young lady whose foot is four inches wide wears a shoe with a sole only two inches and a half. The consequence is that in walking the step of the girls is unsteady and vibrates sideways. Besides, the pressure of the upper leather checks the circulation in the foot and makes it cold. This sort of shoes, with an elastic garter worn about the leg, just below the knee, is the cause why the great majority of girls have cold feet. If the soles of the shoes were made broad, this difficulty would not only be obviated, but the foot itself would look smaller and handsomer. Moreover, such shoes keep in shape much longer than narrow ones. Neither should

they have high heels. The high, small heels lately in fashion are absurd. They tend to weaken the ankle, jam the toes into the sharp points of the boots, and cripple the feet.

India-rubber boots are mischievous, and yet the injury they do is less than would be done by the constant indoor life among girls and women which should result from an abandonment of India-rubbers. One of the rarest things in the world is to meet with a woman who walks well. Any woman has the capacity to walk well. But how can this be done if a girl goes about perking her chin out, sticking out her shoulder blades, and wiggling herself along in a stubby, stumbling way. For fine walking, low, wide heels and broad soles, especially about the toes, are necessary. The body must be at perfect liberty about the waist. The corset is a deadly enemy to fine walking. Next, the direction is to carry the chin close to the neck. Strange to say, the chin is the pivot on which the whole body turns in walking. If the chin is wrong, the shoulders are wrong, the hips are wrong, the whole gait is wrong. A most important rule of health is to stand up straight. Walk erect, sit erect, and even when you are in bed at night, do not put three pillows under your head and watch your toes all night, but keep yourself straight. If you do this, your lungs, heart, stomach, and all the other organs of the body will have room for work. It is impossible even to have a good voice unless you stand erect.

A very good mode of practicing the art of walking is to carry a large book, or some other weight, on one's head one or two hours every day. Whatever weight is employed, it should be carried on the top of the head, holding the chin close to the neck, for thirty minutes

in the morning, and about the same time before lying down at night. The use of thick pillows tends to produce a curve in the neck. The pillow should be hard and thin.

Dr. Lewis has no mercy upon the full dress of low neck and short sleeves. It is as immodest as it is unhealthy. The mania for extravagant trimmings of woman's dress has become insufferable. Earrings are barbarous; finger rings are vulgar. The wearing of false hair is an atrocity. Preparations for the complexion are among the most objectionable outrages which woman perpetrates upon herself. The habit of padding the bust of dresses, so universal among dressmakers, destroys the natural functions of the breasts. Lacing produces a hideous distortion. The enormous paddings worn below the waist heat and injure the spine. The garter seriously influences the circulation of the foot.

Some of Dr. Lewis's suggestions about sun-baths have been widely published and read. They deserve to be circulated everywhere, and generally practiced upon. The following paragraph embodies the principle of the matter :

“ Just think of it, your whole body under the clothes, always in the dark, like a potato vine trying to grow in a dark cellar. When you take off your dress and look at your skin, are you not sometimes almost frightened to see how white and ghastly it seems? How elastic, tough, and cheerful our young folks would become could this white, sickly skin be exposed every day to the sunshine! In no other way could they spend an hour which would contribute so much to their welfare. Carry that white, sickly potato vine from the cellar out into the blessed sunshine, and it begins to get color, health and strength.

Carry that pale little girl from the dark parlor, where she is nervous, irritable, and unhappy, into the sunshine, and immediately the blood starts anew ; soon the skin takes on a beautiful tinge, the little one digests better, her tongue wears a better color, she sleeps better, her nerves are quiet, and many happy changes come."

The practical difficulties in the way of getting the regular sun-bath are easily removed, if the effort is made in earnest to remove them. Women should be doctors, but they should learn that diseases are systematic, not local, and the way of curing most of them is to lift up the general vitality of the patient. One of the greatest remedial agents is sunshine. Baths of sunshine taken upon the naked person are exceedingly valuable ; but baths of water are indispensable. The ordinary bath tub is a humbug. A bathing mat of India-rubber, four or five feet in diameter, with the edge turned up two inches, is the best thing. When you want to bathe, spread it out, and you have all the bath tub you need. Plenty of soap, and a pair of loose mittens of wornout crash complete the apparatus. All baths should be hand baths. In cold weather cold water is indispensable ; in hot weather, hot water may be used. If you are troubled with cold feet, hold their soles four or five minutes in cold water, and then give them a good rubbing ; and if you are troubled with burning feet, a frequent hot foot bath will cure you. Get a pair of hair mittens, and at night, when you are about to retire, rub every part of the skin till it is as red as a boiled lobster.

Gymnastic exercises should be practiced at home, and women when so employed should wear a pair of loose trousers and a jacket.

We all eat too much. Our American system of diet

is bad. There is too great a variety; the food is too rich; the cooking is bad; we eat too often, and we eat at the wrong times. Dr. Lewis gives an account of a dinner at the house of a lady who is recognized as standing at the head of the intellectual aristocracy of a most intellectual and refined city. The plate and crockery were most beautiful. The dinner consisted of four little courses: 1st, a small glass of lemonade; 2d, a bit of melon; 3d, roast beef and sweet potatoes; 4th, ice cream. Nothing should be eaten after dinner, and dinner should be taken early in the day, not later, if possible, than two o'clock. Eat nothing between meals, not even an apple or a peach. Avoid cake, pies, all sweetmeats, nuts, raisins and candies. Wines and liquors Dr. Lewis will not tolerate, and no young woman who is ambitious of a clear, fine skin will drink tea. Tea compromises the complexion, probably by deranging the liver. The best plan is to drink nothing but cold water, and as little as possible of that, except that one or two glasses on lying down at night and on rising in the morning will be found useful.

THE HEALTH OF OUR GIRLS.

How many perfectly healthy women of thirty-five, or even twenty-five, do any of us know? Could they not all be told on our fingers? And oh, what a weariness is life to a broken-down mother, with the wants and cares of life clustering thick about her, while she has no strength to meet them!

The cause and fault lie largely with mothers. They are chiefly responsible for this sad condition of our

American women. The remedy must be in paying more attention to the health of our little girls. That should be the great consideration next to their moral training. The intellectual culture must give place to this most important matter, or the saddest results will surely follow. If the cultivation of a sound, vigorous constitution is made the main object for the first fifteen or sixteen years, there will be a vast flood of suffering swept away from our land in the next generation. The present school system for young ladies is a terrible drain on the life force, and a thorough change should be demanded by mothers before entrusting their girls to its tender mercies. The overflowing spirits of our boys drive them to vigorous out-door sports, which largely counteract the influences of the poisoned, heated air in ill-ventilated school-rooms, and the over-taxing of brain by the multiplicity of lessons. But a girl's habits, and the general sentiment of "good society," tend in her case entirely the other way. Hearty plays are "unlady-like," and what well-bred girl will risk acquiring such a reputation? This sentiment works its deadly mischief, but it may in a measure be counteracted by giving our girls domestic employment. This may be retired, and is very healthful, because of the multitude of muscles called into action. Besides, it is a lesson which will be of life-long service to them. Early instil into their minds the principle that work is noble and honorable—that to be a useless drone in the world's hive is despicable. Teach them to live for a purpose, and to consider all right knowledge as so much gained towards the great end. No one can tell where or when these little lessons, learned so thoughtlessly at the time, may come in use, nor how great may be their value. But with all your acquirements, let "a

sound mind in a sound body," be your study and aim unceasingly, and if God spares your life, you will not fail to see your reward.

Let any mother look about her, and what will be the result of her observations? There is no doubt she will find that four out of five, if not seven out of eight, of her female acquaintances, are most of the year unwell, ailing, and complaining. It is a fact that more than half of the women, to say nothing of the men, are suffering either from dyspepsia, nervous affections, or from some other form of disease, and many of them have unmistakable symptoms of consumption. If any of our readers think this statement an exaggeration, let them make a list of their acquaintances, and see who among them is not suffering from or complaining of some form of disease. Should they still have doubts, let them consult their physician, who will unquestionably tell them that he has never seen, except, perhaps in a few instances, the tongue of an American lady which was not coated, and did not indicate, in a greater or less degree, a state of ill-health. Cannot something be done to obviate this evil, and to improve the health of our women. Are not mothers, in a great measure, responsible for this in the early management and training of their daughters.

Are they not too much confined and deprived of free exercise in the open air and light, from the false and foolish notion that it is fashionable to have them pale and delicate? A little knowledge of the laws of light, says an eminent lecturer, would teach mothers that by shutting their children up day after day, and week after week, in darkened rooms, they are as certainly committing their health, destroying their vital energy, and wasting their brains, as they would if they were giving each so much

poison during the time. A little knowledge of the laws of heat would also teach mothers to discard modern fashions, and not to clothe themselves and their daughters in the foolish and insufficient, if not indecent, modes of dress of the present day. Children, and girls especially, are dressed in clothes that are so short as to appear indecent and are of no kind of protection to the lower extremities of the child. The circulation of the blood through the feet and limbs thus exposed, will, as a natural consequence, become impeded and irregular, and soon the child will show indications of dyspepsia and consumption. The premature death of so many children, and the fearful prevalence of consumption among so many of our young ladies, are sad admonitions to mothers upon these subjects, which they cannot well disregard without a culpable neglect of duty. The fearful mortality of children, and the prevalence of consumption among our young ladies, are subjects that come home to every mother, and, indeed, to every family, whether high or low, and they come, too, in the most saddening forms; in the sufferings and expenses of sickness, as also in the bitterness of death.

Consumption and death are not the only alarming forms in which this subject presents itself. Let any one look at our women with all their far-famed delicacy and beauty, and see at what a fearful sacrifice of health they are purchased. What will he think of them as the mothers of the coming generation? What will be his inference of the future prospects of the physical constitution and health of the children of the many pale faces and slender forms which he sees in almost every household?

Mothers! are you aware, as any one of our medical

men will tell you, that thousands of your children, every year, become victims to an unnecessary and preventable disease, engendered either by your inexcusable ignorance, or persistence in following the fashionable follies of the day!

Are you aware that the diseases which are engendered in childhood, and carry off so many of your children, are, for the most part, such as are mainly under control of the mother, who loves, feeds and educates them, and who, if necessary, would lay down her life for them!

The mother should look well to the sleeping apartments in which is engendered vast amount of diseases, from simple ignorance or disregard of the laws of ventilation. The school-room is a rather fruitful source of disease from a like ignorance or disregard of the laws of physiology, either from keeping the brain of the child too long on the stretch immediately after eating, and keeping them sitting on hard seats without any support to their back, and especially in keeping them confined in crowded and insufficiently ventilated rooms.

It is the duty of mothers, upon these and other subjects relating to the physical well-being of their children, to inform themselves, and to arrest, as far as possible, this fearful mortality of their children. "A word to the wise is sufficient."

SCHOOL-ROOM DISEASES.

The celebrated German physiologist, Dr. Virchow, of Berlin, lately addressed to the Minister of Public Education of Prussia, a report upon the diseases incident to and connected with school-rooms, which is full of valuable information upon this subject. A leading disease,

which to some extent, is believed to originate in the school-room, is myopia or short-sightedness. Of the 10,000 scholars in the schools near and in the neighborhood of Breslau, the capital of Silesia, 17 per cent. are near-sighted. The smallest percentage of diseased eyes was found in the village schools, and the largest in the highest classes of the colleges in the city. In the "gymnasium" 32 per cent. of all the students were near-sighted, while among every hundred students of the university, the eye-sight of sixty-eight was impaired. The causes of this disastrous condition were found, not only in the insufficient light of the school-room, but principally in the permanent nearness of the reading matter to the eye, connected with the bending forward of the heads. Alternations of light and shade are also injurious to the vision. Scholars shut up in semi-darkness find their eyes seriously affected for some minutes after coming into a strong light. This weakens the optic nerve, and reduces the length of vision. The light should be kept as near medium in quantity as possible. Dullness in the head, headache and congestion of the blood of the brain are set down as peculiar scholastic diseases. In Newcastle, in Switzerland, 296 pupils out of 731—upward of 40 per cent.—suffered from headache, the girls being about twice as much affected from it as the boys. In Darmstadt, 3,564 boys and girls belonging to public and private schools were examined by a competent physician; 975 of the number suffered from headache. In the upper class of the college of that city upward of 80 per cent. suffered from the same complaint. The percentage increased with the increase of studies and intellectual exertion. The Doctor attributes this class of ailments to bad ventilation, and heating school-rooms

with iron stoves, which impart a dryness to the air, and take from it its life-giving principle. Bleeding from the nose is also rapidly on the increase in German schools. This is accounted for from the causes just given. The higher classes are more disposed to this manifestation than the lower. Increased mental labor would account for the difference in the numbers. Curvature of the dorsal column is strikingly noticeable among the pupils of the schools, who have been in attendance for some years. It invariably commences between the ages of six and fourteen, and as the curvature of the spine in 619 cases out of 742 which were examined, corresponded to the bending of the spine as it is caused in writing, figuring, drawing, and by almost every kind of needle-work, it evidently cannot be attributed to any other cause except the habitual deflection of that part of the body. How trifling a matter will change the proper direction of the human frame at an early age, may be gathered from the remark of a skillful orthopedist, who found one shoulder of almost every girl of a class higher than the other, in consequence of sitting one-sided upon their garments, which by constantly entering into the seats on the same side were unequally spread. Pulmonary diseases are also ranked among those which may be induced by the imperfect construction of school-houses. Poor ventilation, dust in school-rooms, and especially the defective movements of the lungs and of the diaphragm, must occasion many pulmonary diseases. Scrofulous taints are also developed and aggravated by causes such as those mentioned, while a large class of abdominal complaints find their origin in defective seats, improper confinement, and false habits in the schools, whereby the circulation of the blood in the abdominal regions may

become interrupted. These are the facts underlying the report. They are intensely interesting, and should be studied attentively and thoroughly by the friends of education in this country. In all the large cities our school-houses have been vastly improved within the last few years. There is more room, ventilation is freer, light better, and the heat distributed more equally. But the end of needed improvement has not been reached.

THE EDUCATION OF OUR DAUGHTERS.

Students who apply themselves closely, need to be well nourished. It requires good food and a great amount of it to make the brain work well, and not impair the body. Sedentary habits often induce indigestion; therefore, many have supposed the less they ate the more they could study. About twenty-five years ago earnest persons with limited means worked and studied very hard, and ate and slept very little. Many a good constitution was thus ruined. Nervous dyspepsia was often induced by overwork and lack of suitable nutrition. The more abstemious they were as to food, the less able they became to dispose of what was taken. Many of our ladies, *not* pinched by poverty or pressed by hard work, lose their appetite by too little exercise, too little sleep, and too much study. This course, if long continued, will induce indigestion. The nervous system being exhausted through brain-work, has not power to carry on the bodily functions, and the victim wonders that she should have any stomach trouble when she had eaten so very sparingly. The truth is, limited nutrition has induced indigestion.

The morbid appetite of school-girls, for which they are often blamed or ridiculed, is a nervous disease brought on by impaired nutrition. There is a lack, a longing, "a sense of goneness," which craves but lacks relish for healthful food. Men suffering from this, take to beer and alcoholic drinks; women more often to tea and coffee in excess, and school-girls to chalk, slate-pencils, cakes, candies, etc. A busy brain, as well as an active body, requires beef, bread, oysters, eggs, vegetables, and fruit, all well cooked, and plainly prepared. Physiologists are making investigations as to what food is suited to supply brain and nerve-power, and physicians are talking of remedies best able to restore it when lost, and perhaps, in years to come, we may have a bill of fare exact and definite for those who wish to work with the head, and another for those having hand labor. But certain it is that those of intense mental activity ought not to be helped on, and hurried on, by stimulants, or they will die before their time. Stimulants may be useful for emergencies, for sickness, or for advancing years, but young life, with its enthusiasm, does not need the aid of tea, coffee, or alcohol, unless impaired by sickness or over-work. These will help one through a hard lesson, or a night's gayety, but if it be persisted in, it is at the expense of strength for the years that follow. Tea makes our girls over-excitable, wakeful, nervous. Coffee induces constipation, yellow skin, and mental depression. Washerwomen take their strong tea and "wash it off," work it off through the muscular system, and are ready to sleep. Our sensitive girls take it and are bright for study, for social life, but are wakeful after, and they come to live on tea and coffee, and care less and less for plain nourishing food. There are few

chronic individuals so hard to cure as those who have long studied with too little food and too little sleep. If girls must study too hard, if women must work when they are not able, or if they must be social and gay when they do not feel so, then tea is their best aid, the stimulus safest and best, and very efficient if not relied upon constantly. If needed, it is best in the morning. At night it makes one wakeful, and hence should not be used, save when we *must* sit up, and then it is as good as the Irishman's whisky, which was "victuals, and drink, and lodgings." But if used two or three times a day, then something stronger is wanted for extra occasions, for emergencies. School-girls remain plump and fresh sometimes when they are but imperfectly nourished. The brain-work brings a determination of blood to the head, which gives a flushed face. Besides this, those of studious habits are likely to suffer from torpidity of the excretory organs, hence the system is plump from being loaded with effete material which should have been thrown off by way of the skin and bowels. Thus, what seems to be strength, is merely weight, weariness, an excess of adipose, with a poverty of muscular tissue. In such cases there is a craving for something to eat, but a lack of appetite for regular rations. The whole system is surcharged with impurities which should have been thrown off, and this depresses the appetite and disturbs digestion.

Half the complaints of schools girls about food are the result of lack of relish. Then they feel half famished and nibble cakes, crackers, and candies between meals, or have a box of "goodies" from home, and these will certainly destroy all desire for bread and meat. Of course in supplying a table for large numbers there must be a

•

lack of deference to individual tastes, which can only receive attention in the home circle. But the need of change in occupation, quite as much as in food, causes nine-tenths of the trouble about fare. Over-study, over-anxiety, too little sleep, too little exercise, too much sugar to take away the appetite, and those who cannot eat should not study, for nerve-power is thereby permanently impaired.

THE PHYSICAL TRAINING OF GIRLS.

There can be no doubt that the great attention given of late years to the education of girls has wrought some injurious effects. When so much time is spent in school, and in study out of school, it is plain enough that there will be less opportunity for that bodily exercise which is so essential to health. Fifty years ago girls studied much less than they do at present, but they ran about more, played more in the open air, and helped more in domestic and garden work. So they grew up less learned and intellectual, perhaps, but more robust, and better fitted for the ruder trials of life. We cannot go back to the old state of things, and would not if we could. Knowledge is so much better than ignorance that we willingly accept it with every drawback; and, moreover, it is certain that a better knowledge will cure most of the evils which are due to the present well-meant, but one-sided system of training. It will be more and more clearly understood that the body as well as the mind requires to be educated and strengthened by systematic exercise. In some of our seminaries this maxim is already acted upon with excellent effect. In England, although women and girls habitually take more exercise

than they do in this country, the need of regular training for school girls in this respect is strongly maintained.

Well-regulated bodily exercise furnishes the proper security against overtaxing the brain by study, and study renders a correlative service by securing the muscles against being strained by excessive efforts. In the country there are usually many opportunities of exercise for girls; but in towns generally, and especially among the classes for which mental education is now most urged and most needed, such opportunities are absent, and the art of the gymnast may be fittingly called in as a corrective for what is artificial in the life.

A number of ladies in Jersey City have formed themselves into an association "for the dissemination of a better knowledge of the human system and laws of life." They propose also to secure a "hardier motherhood and less feebly developed posterity."

The New York Evening Gazette tells young ladies that if they would have a fresh, healthy and youthful appearance, they must beware of late hours, large crinoline, tight corsets, confectionary, hot bread, cold draughts, pastry, décolletee dress, modern novels, furnace registers, easy carriages, late suppers, thin shoes, fear of knowledge, nibbling between meals, ill temper, haste to marry, dread of growing old.

I have come to the conclusion, if man or woman, either, wishes to realize the full power of personal beauty, it must be by cherishing noble hopes and purposes; by having something to do and something to live for, which is worthy of humanity, and which, "by expanding the capacities of the soul, gives expansion and symmetry to the body which contains it."

Girls, whose ages range from twelve to eighteen, have

an ideal standard of size, and if by chance nature determines otherwise, it is punished for its presumption. What corsets cannot effect, arsenic, slate-pencils, chalk and vinegar can; and when all these aids are brought into requisition, the saints are rewarded with pallid cheeks, puny physiques—waists that a hand can almost span. The mother knows that in the hour her little girl modestly requests that “the hooks or buttons be set back—for, mamma, see, I can run my hand between my dress waist and myself, and I do feel so untidy with such a bag hanging round me,” that the warfare has begun, and, until the day of her decline, the apostle’s injunction, to “keep the flesh in subjection,” will be scrupulously obeyed. Between the eras of swaddling band and corsets and crinoline, there used to be a period of a few years, when arms and limbs could climb trees and scale heights like their progenitors, mentioned by Darwin, and muscle, sinew and blood bade fair to hold their own. The little, bare-headed, tanned girl of ten, astride a bridleless and saddleless horse, or paddling down the stream on a raft of her own construction, had a season of pure animal enjoyment, and it was thought enough if she grew plump and rosy, was early to bed and early to rise, and could sing the “fives” to the tune of Yankee Doodle. She must have been far in her “teens,” or out of them, before she caught a glimpse of the model young lady, with tapered waist, pinched feet, fastidious appetite and a general air of languor pervading every movement and utterance. She looked upon the lay figure with admiration, and forthwith commenced remodeling herself, but with indifferent success. “As the twig is bent, the tree is inclined.” Nature had a good start, and she would not yield to art without a hard struggle.

The few robust women of fifty to-day are the ones whose young lives were free and careless as the birds, whose clothing never fettered limbs nor pressed lungs, whose impulses and instincts were never checked or killed outright by Mrs. Grundy's strictures.

A child should not enter a school-room before eight years of age for the purpose of study. From eight to twelve, no studies involving close reasoning should be allowed. The hands, feet, eyes, ears and body generally should have careful instruction. Constant physical activity is the normal condition of a child, and any effort to abridge or suppress this must result disastrously; this activity is absolutely necessary for the circulation of the blood. But very few persons can stand absolutely still for twenty minutes without fainting. The contraction of the muscles, so necessary for the circulation of the blood, being wanting, the heart is not sufficiently supplied, and syncope follows. Hence the absurdity and utter impossibility of keeping children still. From twelve to fourteen, health should be the first object; all else subservient. At fifteen education should begin in earnest, to be completed generally at twenty, or professionally at twenty-five.

RECKLESSNESS OF HEALTH.

A great many people believe health only attainable by the toughening process, and for that purpose begin to inure the tender infant to a mode of dress that never protects it from the severe changes. I saw a mother who cherished this theory let her little boy of eighteen months sit on the carpet two hours together, in the severest winter weather, with only a short dress and thin

flannel skirt, the merest nothings of slippers and stockings, while worse than all was the wet swathe about the child a portion of the time. The little one worried constantly, was thin and pale, and his flesh numb with cold. Warm clothes and a crib to sit in would have made a wonderful change. Would the mother have dared to thus expose her health? Would she have laid aside her warm flannel underskirt, long stockings, high kid boots, long sleeves, and high made dress, and taken a seat on the floor two hours?

Another lady, to make her boy stout, allowed him to run in the *snow* with the same amount of clothing on as the first child, with *thin* shoes and stockings. Would the mother do this herself and not be sick? I saw a lovely girl leave a warm room with her bare head and arms, cotton hose and gaiters, and stand half an hour in the snow, while the wind was blowing fiercely. I was not surprised when I heard her complain of poor health. Others think nothing but close rooms, piles of clothing, and continuous indoor life will save their darlings from ill health. They wrap and tuck up in down and cotton, and still their "house plants" don't flourish. This course is as pernicious as the former, and death takes victims fast under either mode. Children of very strong constitutions will endure a great deal of exposure, and survive with hot-house treatment; but the effects of both these systems will cause suffering in later years, seldom attributed to such causes. Children who inherit untold ills, and who *never* know health, are exceptions that common laws cannot reach or govern. The most cautious course is necessary to make them comfortable; and superior judgment is needed to bring them safely through the ailments of youth.

To attempt to keep near the customs and follow their rapid changes, takes all the time and energy of whole families. With all the machines and appendages to facilitate labor, those who attempt to dress in style a family of medium size are constantly tired. Unless abundant wealth can command everything done to order, without anxiety and worry, some one's brows must be wrinkled, some one's form bending with care. So old ladies and young ladies grow reckless of health and sacrifice it to style.

No young, or unmarried lady, can judge correctly of the ill effects of tight lacing. Those who have passed the ordeal of motherhood know lacing to be anything but safe or right. The peculiar organism of woman, and her destiny, make it sacredly important that every organ be developed systematically, and *naturally*. The aggravated suffering of a large number who become mothers is the result of their own folly and mode of dress. Our ideas of beauty and sensibleness are strangely inconsistent. If the lacing process is adapted to one, why not to another? A gentleman with whalebone waist is thought a luckless dandy; but a lady, of more delicate organism, must be encased in bones and braces until her waist is only twelve inches in circumference to complete our ideal of grace.

Did God thus fashion us, with His great eye for beauty, His perfect perception of elegance, His foresight of destiny? Mother, answer this as you take in your arms that beautiful babe. Why not as justly compress its head, limbs and feet, as to press by tight bandages, its lungs and heart? If ignorant of laws that are sacred as our being, study them, and teach them to your children. Teach them where each organ is, and its office, and how

sacred are its functions. Before you recklessly expose that young life, and destroy, by injudicious management, a good constitution, stop to think of your trust. Is respiration to be interrupted by your folly, and a victim reared for consumption? If God gives to your care a fragile, delicate blossom, are you to crush it thoughtlessly? Can a poor guileless soul thrive in a body tortured and compressed and trained for the sole purpose of meeting the demands of fashion?

If there is one thing more than another the ladies of this land need, it is a complete and thorough knowledge of hygiene, anatomy, physiology, etc. And until mothers know more of these things, and teach them to their children, as they now teach them how they can attain the nearest ideal Mrs. Grundy worships, health will degenerate.

THE CAUSE OF AN EARLY LOSS OF BEAUTY.

The evils arising from the transgressions of the laws of health find their greatest extreme among women. Shut up in houses nine-tenths of their time, with either no exercise, or that which is of a limited, irksome sameness, they are, as a consequence, unnaturally pale, soft and tender; their blood is poorly organized and watery, their muscles small and flabby, and the force and functions of their bodies, as a whole, run low in the scale of life. A spurious fullness in the outline during girlhood, which usually melts like snow under an April sun whenever the endurance is put to the test, as in performing the functions of a mother. The change in appearance from the maiden of one year to the mother of the next,

is often so striking and enduring that it is difficult to believe that we are looking at the same person. The round, pleasing shape is prematurely displaced by a pinched angularity, and an untimely and unseemly appearance of age. Travelers from other countries, who have had extensive means for observation and comparison, have remarked upon the great beauty of American women, and the early age at which it is lost. Some have ascribed this to the climate; but more intelligent observers agree that it is mainly due to a hot-house, enervating mode of life. English ladies of rank who, by the way, are celebrated for retaining their beauty even to a ripe old age, think nothing of walking a half dozen miles at a time; while American ladies would think such a thing "perfectly dreadful." If American women, so daintily and richly fed, will sit in dark and sultry rooms the live long day, they must expect to bloom too soon, to hasten through this charming period—at the longest in about ten years—and for twenty-five years after, have the grim satisfaction of being thin, wrinkled, angular and sallow.

Most people would like to be handsome. Nobody denies the great power which any person may have who has a good face and attracts you by good looks, even before a word has been spoken. And we see all sorts of devices in men and women to improve their good looks—paints and washes, and all kinds of cosmetics, including a plentiful anointing with dirty hair oil.

Now all cannot have good features. They are as God made them; but almost any one can look well, especially with good health. It is hard to give rules in a very short space, but in brief these will do:

Keep clean—wash freely and universally with warm

water. All the skin wants is leave to act free, and it will take care of itself. Its thousands of air-holes must not be closed.

Eat regularly and sleep enough. The stomach can no more work all the time, night and day, than a horse; it must have regular work and regular sleep.

Good teeth are a great help to good looks. Brush them with a soft brush, especially at night. Go to bed with teeth clean. Of course, to have white teeth it is needful to let tobacco alone. Every woman knows that. And any powder or wash for the teeth should be very simple. Acids may whiten the teeth but they take off the enamel and injure them.

Sleep in a cool room, in pure air. No one can have a clear skin who breathes bad air.

When the mind is awake, the dull, sleepy look passes away from the eyes. I do not know that the brain expands, but it seems to. Think, read—not trashy novels, but books that have something in them. Talk with people who know something; hear lectures and learn by them.

We can safely recommend the following directions for attaining habitual good health to all our friends: For a clear complexion—Rise early, use plenty of fresh water, observe the strictest moderation in diet, and take plenty of exercise in the open air. The same plan will be found beneficial in other respects. Those who regularly pursue it, generally possess coral lips, white teeth, and pure breath.

To give brilliancy to the eyes—shut them early at night, and open them early in the morning; let the mind be constantly intent on the acquisition of useful knowledge, or on the exercise of benevolent feelings. This

will scarcely ever fail to impart to the eyes an intelligent and amiable expression. To preserve the forehead from wrinkles—cultivate contentment, calmness and benignity of spirit; and never, on any account, indulge a murmuring, and resentful, or a malevolent feeling. By constant adherence to the above simple rules, many females have preserved their attractions even to the age of four-score years and upwards.

PHYSICAL DEGENERACY OF AMERICAN WOMEN.

Dr. E. H. Clarke, of Boston, a physician of the foremost rank, we believe, in that city, and formerly a professor of materia medica in Harvard College, has published a little book, the "Sex in Education; or, A Fair Chance for the Girls." In his introductory chapter he says:

"The delicate bloom, early but rapidly fading beauty and singular pallor of American girls and women, have almost passed into a proverb. The first observation of a European that lands upon our shores is that our women are a feeble race; and if he is a physiological observer he is sure to add, they will give birth to a feeble race, not of women only, but of men as well. 'I never saw before so many pretty girls together,' said Lady Amberley to the writer, after a visit to the public schools of Boston, and then added, 'They all look sick.' Circumstances have repeatedly carried me to Europe, where I am always surprised by the red blood that fills and colors the faces of ladies and peasant girls, reminding one of the canvas of Rubens and Murillo; and am always

equally surprised on my return by crowds of pale, bloodless, female faces, that suggest consumption, scrofula, anemia and neuralgia." Girls of bloodless skins and intelligent faces may be seen any day by those who desire the spectacle, among the scholars of our higher and normal schools—faces that crown and skins that cover curving spines, which should be straight, and neuralgic nerves that should know no pain. Later on, when marriage and maternity overtakes these girls, and they live 'laborious days' in a sense not intended by Milton's line, they bend and break beneath the labor, like loaded grain before a storm, and bear little fruit again.

Dr. Clarke adduces the testimony of several other observations in confirmation of his own statement. Mrs. Beecher Stowe says: "The race of strong, hardy, cheerful girls that used to grow up in country places, and made the bright, neat New England kitchen of olden time—the girls that could wash, iron, brew, bake, harness a horse and drive him, no less than braid straw, embroider, paint, and read innumerable books—this race of women, pride of olden time, is daily lessening; and in their stead come the fragile, easy-fatigued, languid girls of a modern age, drilled in book learning, ignorant of common things."

Dr. Weir Mitchell, whom Dr. Clarke justly designates as one of the most eminent American physiologists, writes in a similar strain: "To-day the American woman is, to speak plainly, physically unfit for her duties as woman, and is perhaps, of all civilized females the least qualified to undertake those weightier tasks which tax so heavily the nervous system of man. She is not fairly up to what nature asks from her as wife and mother. How will she sustain herself under the pressure of those yet

more exacting duties which now-a-days she is eager to share with the man."

Another American physician, after remarking that, "in the normal state nature has made ample provision in the structure of the female for nursing her offspring," says: Formerly such an organization was very generally possessed by American women, and they found but little difficulty in nursing their infants. It was only occasionally, in case of some defect in the organization, or where sickness of some kind had overtaken the mother, that it became necessary to resort to the wet nurse, or to feeding by hand. And the English, the Scotch, the German, the Canadian French, and the Irish women now living in this country generally nurse their children; exceptions are rare. But how is it with our American women, who become mothers? To those who have never considered this subject, and even to medical men who have never carefully looked into it, the facts, when correctly and fully presented, will be surprising. It has been supposed by some that all, or nearly all, our American women could nurse their offspring just as well as not; that the disposition only was wanting, and that they did not care about having the trouble or confinement necessarily attending it. But this is a great mistake. This very indifference or aversion, shows something wrong in the organization as well as in the disposition. If the physical disposition were all right the mind and natural instinct would generally be right also.

While there may be here and there cases of this kind, such an indisposition is not always found. It is a fact that large numbers of our women are anxious to nurse their offspring, and make the attempt; they persevere for awhile—perhaps for weeks or months—and then fail.

Why should there be such a difference between our American women and those of foreign origin residing in the same locality, surrounded by the same external influence? The explanation is simple; they have not the right kind of organization; there is a want of proper development of the lymphatic and sanguine temperaments—a marked deficiency in the organs of nutrition and secretion.”

It is stated by Dr. Toner, of Washington, whom Dr. Clarke quotes, “that the proportion between the number of American children under fifteen years of age, and the number of American women between the child-bearing ages of fifteen and fifty, is steadily declining. In 1830, there were to every 1,000 marriageable woman 1,952 children under fifteen years of age. Ten years later there were 1,863, or eighty-nine less children to every 1,000 women than in 1830. In 1850 this number had declined to 1,720; in 1860 to 1,666, and in 1870 to 1,568.

“The total decline in the forty years was 384, or about twenty per cent. of the whole proportional number in 1830, a generation ago.” Alluding to the supposed causes of the physical degeneracy in question, Dr. Clarke says: “If these causes should continue for the next half century, and increase in the same ratio as they have for the last fifty years, it requires no prophet to foretell that the wives who are to be mothers in our Republic must be drawn from transatlantic homes. The sons of the New World will have to re-enact, on a magnificent scale, the old story of unwived Rome and the Sabines.”

HOW MANY WIVES FADE.

How many pale, lifeless women you see in the West, and in the East, too, for that matter! Young, fresh-looking women marry, and in five or ten years you can scarcely recognize them, while their husbands look as well as on the day of their wedding. One cause of this is complicated housekeeping. When a man undertakes a business, he finds learned men ready to assist him; he knows what there is to do and secures help accordingly. A young woman goes to housekeeping very often without any help at all, or perhaps with one awkward girl, like the wife in this respect. There are three meals to get every day—that means cooking; and then comes the dishes to be washed after each meal. It would take about 45 pieces for breakfast and supper, and 70 for dinner for a family of five—115 pieces to be carried from the kitchen to the dining-rooms every day, washed and carried back. If you have six rooms in your house there is one to be thoroughly swept and cleaned daily, besides brushing up the others, making beds, bringing in wood and carrying water.

Twice a week there is bread-making, twice a week yeast-making, one day washing, one day ironing, pantries and safes to be washed out once a week, dairy work to be attended to, besides innumerable jobs in the way of preserving, jelly-making, pickling, curing hams, putting down pigs' feet, looking over apples twice in winter, and making hogshead cheese, mince meat, a thorough house cleaning twice a year, then sewing on dresses, aprons, shirts, drawers, gowns, etc., by the dozen.

Then supposing the housekeeper has a baby—an aver-

age six months' old baby that weighs about 18 pounds. Suppose she has this child in her arms 30 times a day (a cross infant is taken up more frequently), and often she is obliged to work with the right arm whilst carrying the burden of a baby about with the left. Who is it that says there is nothing in gymnastics equal to the endurance of a mother's arms? Even when the day's labor is accomplished, and she goes to bed, she still holds her baby and does not sleep soundly for fear of rolling on it or its getting uncovered; she must attend to its wants several times in the night, and must be in a constrained condition for fear of disturbing it.

I have heard women say they would give almost anything for a night of undisturbed sleep, "with no care on the mind." Then in the morning up and at it again. Don't you see why women get pale, and why some times a little cross, and how their husbands wonder that their wives don't look pretty and dress well, and entertain them as they did before they were married?

The wives don't reason on the matter; they think it all the man's fault, and then they turn cross, and so things go at sixes and sevens, and this is the place where woman's rights should be taken hold of. I don't think voting would help that very much; woman's labor should be made a study. In the first place men must realize that it is a great labor to keep house. A great many women sink down under the weight; then everybody says, "Poor thing, she always was a weakly, good-for-nothing creature!" and the "poor thing" has been doing more for the past ten years than two women ought to have done.

Dr. Hall, speaking of the frail health and early fading of American women, especially in cities and large towns,

says they live too luxuriously, and their habits of eating and sleeping are too artificial and irregular. Our young women are trained in female boarding schools, which, with rare exceptions, are academies of mental, moral, and physical depravation; where novel-reading in secret, and a smattering of everything in public, with a thorough practical knowledge of nothing, is the order of the day. From graduation to marriage, nothing is done to establish the constitution, to make firm the health—no instructions given as to how that health may be preserved, no active teaching as to household duties, no invigorating morning walks, no wholesome, elegant, and graceful exercises on horseback. The days are spent in eating, in easy lounging, in ceremonial visitings, in luxurious dreaminess over sentimental fictions; their nights, in heated rooms or crowded assemblies of hot and poisoned, if not putrid, air. No wonder that, with educations like these, the girls of our cities and larger towns fade away into the grave long before they reach the maturity of womanhood.

Mr. Alexander Delmar's paper on the insurance of women's lives reveals some interesting facts not generally known. It appears from trustworthy statistics that women are not subject to greater risk of death than men; in New York City, for example, the mortuary record shows that the per centage of deaths of males in 1870 was 31.5; of females 26.3. In the previous year the per centage of females was 25.5 against 30.6 of males. The number of deaths of males over 45 years of age, in the period from 1866 to 1870, was 13,022; and of females, 11,267—a difference in favor of females amounting to 1,755 for five years, or an average of 351 per year. The tables of causes of death also show a consid-

erable per centage in favor of women. These are interesting results, especially in connection with the subject of life insurance—many of the insurance companies discriminating against women in the issue of policies on the ground of increased risk.

WHAT FOLKS ARE MADE OF.

In the body of a man weighing 154 pounds, there are about $7\frac{1}{2}$ pounds of mineral matter, consisting of phosphate of lime, 5 pounds, 13 ounces; carbonate of lime, 1 pound; salt, 3 ounces, 376 grains; peroxyd of iron, 150 grains; silica, 3 grains. Making 7 pounds, 5 ounces and 49 grains, with minute quantities of potash, chlorine and several other substances. The rest of the system is composed of oxygen, hydrogen, nitrogen and carbon; 111 pounds of the oxygen and hydrogen being combined in the form of water. Though the quantity of some of these substances is very small, it is found absolutely essential to health that this small quantity should be supplied; hence, the importance of a variety of food. If we furnish Nature with all the material required, she will select such as the system needs, and always just in the proper quantities.

The number of bones in the human body is generally estimated at 245, of which there are reckoned in the skull, head and face, 61; in the trunk 64; in the arms and hands, 60; and in the legs and feet, 60. The weight of the skeleton is about one-tenth of the whole body.

Bone, when used as a lever, is 22 times as strong as sandstone, $3\frac{1}{2}$ times as strong as lead, nearly $2\frac{3}{4}$ times as strong as box, yew and oak timber.

The number of muscles in a man is 500, being more than twice the number of the bones. The bulk of the body, upon an average, is equal to a cube of a little more than sixteen inches on a side, and the amount of water equals a cube a little more than fourteen inches on a side, or nearly three-fourths of the body.

An adult drinks about fifteen hundred pounds of water yearly, and throws off, through the various waste-gates, nineteen hundred pounds. The difficulty of accounting for the four hundred pounds has led some to suppose that the water is formed in the system by the union of oxygen and hydrogen.

The salts that have been enumerated are found in almost every part of the body. Common salt (chloride of sodium) is found in every fluid and solid, except enamel. The whole amount in the human body is 277 grains. It serves many important cases.

Carbonic acid is found in the lungs, alimentary canal, the blood and urine. The amount of carbonic acid, however, varies, being from one to three pounds in twenty-four hours, and the causes of variation are temperature, age, sex, state of health or disease, development of the body, muscular exertion or repose. This gas (carbonic acid) contains, in every 100 pounds, 28 pounds of carbon (charcoal), and 72 pounds of oxygen (gas). Hence the maximum weight of carbon which escapes in this form from the lungs of a full-grown man is about fifteen ounces in twenty-four hours.

The average amount of air which passes in and out of the lungs at each inspiration and expiration is about 20 cubic inches; the amount passed through them in twenty-four hours is about 622,000 cubic inches, or, as others estimate it, from 3000 to 5000 gallons every day. This

varies greatly. In the first place, the lower the temperature the greater the amount of animal heat to be generated, and, consequently, the amount of air to be consumed. Also, a person laboring in the open air breathes more deeply than one confined to the house. From a series of 5000 observations made by Dr. Hutchinson, the following principle is deduced: "For every inch of stature from five to six feet, eight additional cubic inches of air are given out at a forced expiration after a full inspiration." That is, if a person five feet six inches in height can expire 422 cubic inches, a person five feet seven inches can expire 430 cubic inches.

The nails of the hand grow about two-fifths of a line per week, while those of the feet require four times that period for the same amount of growth. Cases are on record where the nails have been shed periodically. The time necessary for a nail to grow its whole length varies from twelve to twenty weeks. The nails are thickest at their most convex portions, instead of their edges; they grow only so long as they are cut, and among the literary class of the Chinese, who never cut their nails, they are said to attain only a length of two inches.

In man, the average weight of the brain is 54 ounces; in females, 45. The average capacity of the crania of Germans and Anglo-Saxons is 90 cubic inches. Daniel Webster's cranium contained 122 cubic inches.

The amount of blood in a healthy body is about eighteen pounds, or ten quarts. The heart is six inches in length and four inches in diameter, and beats 70 times per minute, 4200 times per hour, 100,800 times per day, 36,722,000 times per year, 2,566,440,000 times in three-score and ten; at each beat $2\frac{1}{2}$ ounces of blood are thrown out of it; 175 ounces per minute, 656 pounds per hour,

$7\frac{3}{4}$ tons per day. In an ordinary life of a man, the heart beats at least 3,000,000,000 times and propels through the aorta 1,500,000 tons of blood.

The amount of gastric juice secreted by the stomach of a well-fed, grown person, has been estimated at from 60 to 80 ounces in twenty-four hours. A healthy stomach contains no gastric juice except where food is taken, and by its contact with the surface of the mucous membrane excites the secreting organs to pour out the gastric fluid in the requisite quantity. If the stomach is in a healthy condition, and the brain healthy, the quantity of gastric juice generated or thrown out will be just sufficient for healthy digestion. If the condition of either organ is impaired, the gastric juice secreted may be either deficient in quantity or vitiated in quality.

Let us study ourselves, that we may understand ourselves better. The proper study of mankind is MAN.

STATISTICS OF HUMAN LIFE.

A medical writer of eminence has been collecting evidence as to the chances of life which children have, upon being born, in different countries. Out of 10,000 children born, it is found from official statistics that in Norway as many as 7,415, or roughly speaking, three out of every four, live to be twenty years of age. In England only 6,627 so live, or 788 fewer than in Norway. In the United States boys have nearly as good a chance of life as in England, while girls have not. But in France only 5,022, or scarcely more than one out of two, reach twenty. While in Ireland no more than 4,855 or actually less than one out of two, attain that age.

More surprising still are the statistics regarding old age. Out of the 10,000, for example, we learn that in Norway 3,487, more than one out of three, reach seventy; in England, almost one out of four; in the United States, still men only, one out of four—a trifle higher than England; in France, 1,776, or about one of $8\frac{1}{2}$, and in Ireland only 861, or one out of $11\frac{1}{2}$. If this table is to be depended upon, we thus learn that of all countries in the world Norway offers the new born child the best chance of long life, while Ireland offers the worst.

Throughout the civilized world the duration of human life has increased, and is steadily increasing with the advancement and diffusion of medical science.

In the city of Geneva, in the 16th century, 1 individual in 25 died annually. For the 18th century, 1 in 34; at the present time 1 in 46. With us the mortality is greater. We estimate it at 1 in 40; the proportion of childhood being larger, and childhood being the period of the greatest mortality. In the British navy among adults, none of whom are very aged, the mortality is only about 1 in 100. Seventy years ago the mortality in the British navy was 1 in every 10; in 1808, 13 8-10 among one thousand—a diminution to less than a seventh of the rate in 1770. In the American army, with a corps of medical officers not excelled by that of any other country, the mortality is little over 1 in 300 per annum. In London the mortality in the middle of the last century was 1 in 32; in the year 1838, the mortality was 1 in 36. We quote from the Annual Report of the Registrar General. Within the last 20 years the mortality of Russia, 1 in 36; France, 1 in 39.07; Holland, 1 in 39; Belgium, 1 in 43.01; England, 1 in 53.07; Sicily, 1 in 32; Greece, 1 in 30; Philadelphia, 1 in 42.03; Bos-

ton, 1 in 45; New York, 1 in 37.83. The immigrants have made our mortality greater than that of our sister cities; in other respects it has diminished with the advance of medical science. These statistical statements might be multiplied at great length; but enough have been given to show conclusively the prodigious extent to which human life has been lengthened with the advance and diffusion of medical science beyond its present duration in the less enlightened countries of Europe.

The yearly mortality of the globe is 33,333,333 persons. This is at the rate of 91,554 per day, 3730 per hour, 62 per minute. Each pulsation of the heart marks the decease of some human creature. The average of human life is 33 years. One fourth of the population die at or before the age of seven years. One half at or before 17 years. Among 10,000 persons, one arrives at the age of 100 years, one in 500 attains the age of 90, and one in 100 lives to the age of 60. Married men live longer than single. In 1000 persons, 95 marry, and more marriages occur in June and December than in any other months of the year. One eighth of the whole population is military. Professions exercise a great influence on longevity. In 1000 individuals who arrive at the age of seventy years, forty-three are clergymen, orators, or public speakers, forty are agriculturists, thirty-three are workmen, thirty-two are soldiers or military employees, twenty-nine advocates or engineers, twenty-seven professors, and twenty-four doctors. Thus, it appears that those who heal us kill themselves more rapidly than others.

Farmers and workmen do not arrive at good old age as often as clergymen and others who perform no manual labor; but this is owing to the neglect of the laws of

health, inattention to proper habits of life in eating, drinking, sleeping, dress, and the proper care of themselves after the work of the day is done. These farmers or workmen eat a heavy supper on a summer's day, and sit around the doors in their shirt sleeves, and, in their tired condition and weakened circulation, are easily chilled, laying the foundation for diarrhœa, bilious colic, pneumonia or consumption.

It is singular how much method has been discovered in the seeming irregularities of life. Things that appear the most casual occur with wonderful order when the aggregate is taken into account. Take, for instance, the height of men. What influence has it on longevity? How can we know whether we are fortunate or unfortunate in this respect? Facts show that one's height does affect the length of one's days, and tall men live longer than short ones.

Lay your finger on your pulse, and know that at every stroke some immortal passes to his Maker—some fellow-being crosses the river of death—and if we think of it, we may well wonder that it should be so long before our turn comes. But reproduction asserts its superior power; for, on calculating the probable annual births on the globe, the result shows that whereas 60 persons die per minute, 70 children are born, and thus the increase of the population is kept up. It seems from these facts that the two great events of life are being born and dying. We appear here our brief day, and then our name adds one to the multitude of the dead. Happy is he who having done life's work, finds joy in the thought of the silence and peacefulness of the grave. After the turmoil, rest.

According to a French statistician, taking the mean of

many accounts, a man of 50 years of age has slept 6,000 days, worked 6,500 days, walked 800 days, amused himself 4,000 days, was eating 1,500 days, was sick 500 days, etc. He ate 17,000 pounds of bread, 16,000 pounds of meat, 4,600 pounds of vegetables, eggs and fish, and drank 7,000 gallons of liquid, namely, water, coffee, tea, beer, wine, etc., all together. These would make a respectable lake of 300 square feet surface and three feet deep, on which a small steamboat could navigate. And all this solid and liquid material passing through a human being in 50 years! Verily, there is after all some truth in the story of the ogre who drank a lake dry to catch the fugitives that were sailing over it. Any man can do the same—only give him time.

This estimate is, however, made for a Frenchman; for an American we have to modify it, by lessening the number of days he devotes to amusements, and in place of this substitute 1,000 days for quietly speculating how to get more of the almighty dollar, 1,500 days for traveling by steam and horse power, and 200 days in waiting for means of transportation. The latter number is by no means over-estimated for the inhabitants of New York, Philadelphia or other large cities of the Union.

The following physiological facts were translated from a French scientific journal: "The average height of man and woman, at birth, is generally sixteen inches. In each of the twelve years after birth, one twelfth is added to the stature each year. Between the ages of twelve and twenty, the growth of the body is slower; and it is still further diminished after this, up to twenty-five, the period of a maximum growth.

"In old age, the height of the body diminishes on an average of about three inches. The height of woman

varies less than that of man in the different countries. The average weight of a male infant is about seven pounds; of a female about six and a half pounds. The weight of an infant decreases for a few days after its birth, and it does not sensibly commence gaining until it is a week old. At the end of the first year, the child is three times as heavy as when it was born. At the age of seven years, it is twice as heavy as when a year old. The average weight of both sexes at twelve is nearly the same; after that period, females will be found to weigh less than males. The average weight of men is one hundred and thirty pounds, and of women one hundred and twelve pounds. In the case of individuals of both sexes, under four feet four inches, females are somewhat heavier than men, and *vice versa*. Men attain their maximum weight at about forty, and women at or near fifty. At sixty, both sexes usually commence losing weight, so that the average weight of old persons, men or women, is nearly the same as at nineteen."

WONDERS OF MAN.

Wonders at home by familiarity cease to excite astonishment; but thence it happens that many know but little about the "house we live in"—the human body. We look upon a man as we look upon a house from the outside, just as a whole or unit, never thinking of the many rooms, the curious passages, and the ingenious internal arrangement of the house, or of the wonderful structure of the man; the harmony and adaptation of all parts.

Supposing your age to be fifteen, or thereabouts; you

have 160 bones and 500 muscles; your blood weighs twenty-five pounds, your heart is five inches in length and three inches in diameter, it beats seventy times per minute, 4200 times per hour, 100,800 times per day, and 36,722,200 times per year. At each beat a little over two ounces of blood is thrown out of it; and each day it receives and discharges about seven tons of that wonderful fluid. Your lungs will contain a gallon of air, and you inhale 24,000 gallons per day. The aggregate surface of the air cells of your lungs, supposing them to be spread out, exceeds 20,000 square inches. The weight of your brain is three pounds; when you are a man it will weigh about eight ounces more. Your nerves exceed 10,000,000 in number. Your skin is composed of three layers, and varies from one-fourth to one-eighth of an inch in thickness. The area of your skin is about 1700 square inches. Each square inch contains 3500 sweating tubes or perspiratory pores, each of which may be likened to a little drain-tile one-fourth of an inch long; making an aggregate length of the entire surface of your body of 201,166 feet, or a tile ditch for draining the body almost forty miles long.

In this world of ours, amid its cares and perplexities, how seldom do we pause to think upon the wonders and mysteries of our existence. Day by day we enjoy the breath of life, eat, drink, move, and have our being, unmindful of the wondrous powers by which these ends are realized, ungrateful, many of us, to that Divine Being "whose hands have made and fashioned us," and whose infinite wisdom hath so beautifully adapted our organization to the requirements of our life and comfort. The science which unfolds to us the wonders of the human frame, and exhibits the workings of all its intricate

machinery, shows us upon what an infinity of springs, and motions, and adaptations our existence depends. Whether we are sleeping or waking, sitting or walking, there is going on within such a multiplicity of curious phenomenon, such a variety of movements and muscular action, as would overpower us with astonishment and even with fear, were we to behold them. We should be apt to feel alarmed on making the least exertion, lest the parts of this intricate machinery should be broken or deranged, and its functions interrupted.

The steam engine, constructed as it is of the hardest and most durable materials, will run but a few months without some of its essential parts being worn or disabled, even though its action be frequently discontinued. But the animal machine, though constructed for the most part of the softest and most flabby substances, can go on without intermission in all its diversified movements by night and by day for the space of eighty or one hundred years, the heart giving 96,000 strokes every twenty-four hours, and the whole mass of blood rushing through a thousand pipes of all sizes every four minutes.

It is not very generally known what an immense amount of labor is performed by the various organs and parts of our body in every year of our short lives. We have made some estimates relative to this point, and will present the odd results for the benefit of those who seldom think upon the subject.

Our heart at each successive pulse or contraction, by which it protrudes the blood out of the arteries into the veins, exerts a force of about 100,000 pounds. It contracts 4000 times an hour, and in one day seven hundred and fifty gallons, or twenty-three and a half barrels of blood pass through its cavity, and at this rate upwards

of 8577 barrels in one year. This quantity seems enormous. The idea of over 8000 barrels of blood passing through this little organ in this time, and it capable of holding only about two ounces at one time. It seems almost incredible, but then there are many incredible truths in our strange existence, and "figures very seldom lie."

Our liver secretes three barrels and one-fifth of bile, salivary glands four barrels of spittle, stomach five barrels of gastric juice, and our kidneys upwards of eight barrels of their secretion in one year. There passes off through the skin, by means of twenty-eight miles of little "sweat tubes," three barrels or more of water in the form of insensible perspiration, and about the same quantity by the lungs through the breath. In addition to this there are the secretions of various other organs and glands of the body in proportionate quantities, which in itself cannot be less than two barrels at a very moderate estimate. Making an aggregate of the whole, we find that there are about seven hundred and seventy-six gallons, or nearly twenty-five barrels of liquids of various kinds discharged from our body by its various emunctories in one year.

These calculations, based upon facts gathered by the researches and experiments of our physiologists, bring to light the huge amount of labor these fragile organs of ours are capable of performing. But there are other curiosities in our economy, and we will pass on to them.

There are four hundred and forty-six different muscles, two hundred and forty-five bones (sixty of which are in the hands), and upwards of three hundred ligaments in the human body. Each muscle acts in at least ten different capacities, that is, it has ten different intention or

qualifications to serve; each bone has been estimated to have forty. Taking these together, we find that the muscles and bones alone have upwards of 14,000 different adaptations or intentions. If we were to attend to the many thousand ligaments, tendons, membranes, humors, fluids of various descriptions, the skin with its millions of pores, and every other part of the organical system, we would have another sum of many hundreds of millions to be multiplied by the former product in order to express the diversified ideas which enter into the construction of our wondrous body.

One hundred and three muscles are brought into use every time we breathe, and the combined force of these muscles in accomplishing this act has been estimated at 3000 pounds at each inspiration. As regards the strength of the other muscles of our body, Doctor Dicks says that "when a man lifts up with his teeth a weight of two hundred pounds with a rope fastened to the jaw teeth, the muscles named the *temporalis* and the *masseter*, with which people chew, and which perform this work, exert a force of above 15,000 pounds. When a man, standing on his feet, leaps or springs to the height of two feet, if the weight of such a man be one hundred and fifty pounds, the muscles employed in that action will exert a force 2000 times greater, that is to say, a force of about 300,000 pounds." Thus it is, the more we inquire into the wonders and mysteries of our existence, the more perplexing and astonishing it seems to be. We meet with truths that more than puzzle our minds, and find ourselves in such a labyrinth of strange phenomena, as to excite doubts in our minds as to their veracity; "indeed," exclaims Doctor Dicks, "we can hardly believe our senses."

When these calculations are carried on for a lifetime of fifty or eighty years, they form results that are truly prodigious, and well calculated to excite sentiments of extreme amazement and wonder. A man's beard grows upwards of twenty-seven feet in a lifetime of fifty years, his finger and toe nails about seven feet in the same length of time, and it has been computed that a woman with a full and healthy head of hair has upwards of fifty-seven miles of the capillary substance vegetating upon her cranium. But we will not lengthen our article by continuing farther these strange estimates of the wonders and singularities of "the house we live in." We will content ourself at the present with adding one more (there is always room for one more), and close. Has anybody ever thought how much food a human being "makes way with" in one year, or how much it would amount to if estimated for a lifetime? If not, the following may prove interesting.

Let us allow two pounds and a half of food per day, which is quite a moderate estimate, for there are men who daily eat from four to five pounds, and multiply it by the number of days in one year. We have nine hundred and twelve pounds and a half, the amount eaten in this time. If now we multiply this by fifty, to make our estimates for a lifetime of fifty years, we have 45,625 pounds, or nearly twenty-three tons of food that is eaten by a man of moderate appetite in this length of time.

What a delicate little morsel to set before a young man with the information that he is to eat and digest it before he dies. Undoubtedly, when we whisper in his ears that the glands in his mouth will secrete about two hundred and fifteen barrels of spittle to moisten and as-

sist the swallowing of it, that his stomach will furnish two hundred and fifty barrels of gastric juice to digest it, and that about one hundred and fifty barrels of other digestive fluids and acids are necessary for the accomplishment of the process, and that enough heat is generated in the same process to raise to the boiling point one hundred and forty-six gallons, or nearly five barrels of cold water, it will open his eyes and ears to the truth that "he is fearfully and wonderfully made." Indeed, with such abundant testimony before us, who could fail to think otherwise? Who can refrain from joining with the psalmist in his pious exclamation: "Adorable Creator! with what wonderful art hast thou formed us! Though the heavens did not exist to proclaim thy glory, though there were no created being on earth but myself, my own body might suffice to convince me that Thou art a God of unlimited power and infinite goodness."

THE LENGTH OF HUMAN LIFE.

What may be considered the normal age of man—the age to which the human mechanism might endure but for disease, accident, or other collateral interference? Three score years and ten is the scriptural answer, we all know; but without irreverence we may easily assume that the scriptural statement contemplated the probability of disease, of accident, or of one or another amongst the extraneous causes in that by far the majority of cases terminates human life; not allowing euthanasia, or death from actual wearing out of the animal mechanism, to supervene. The physiologist, Blumenbach, came to the conclusion that there is no period

which can be said to be entitled by its frequency and marked regularity to be considered the natural term of advanced old age. Trying to determine this point, he consulted all the bills of mortality he could gain access to, and the conclusion he was able to arrive at was, that in Europe, no inconsiderable number of individuals reached their eighty-fifth year, but few got beyond it; and that from one or other cause, only one in every seventy-eight human beings can with any truth be said to die in the condition of euthanasia. Blumenbach, it is worthy of remark, died in the beginning of 1840, aged eighty-eight, having retained his faculties to the last. He continued to lecture up to a few days before his death, and with the spirit and humor that had always been his wont.

Hufeland was of opinion that, were it not for disease or accident, or other extraneous cause, the natural term of man's life, ending in euthanasia, might be fixed at about two hundred years. He considered the assertion strengthened by its agreement with the proportion between the time of growth and the duration of life. An animal, according to Hufeland, lives eight times as long as it grows; and the growth of man can be hardly looked upon as complete until twenty-five years of age.

Speculating on the average age of mankind, and animals in general, some have expressed surprise that the organism should wear out at all, seeing that the materials of it are so constantly replenished; others, on the contrary, have wondered that the mechanism should last so long as it ordinarily does. In reference to the former, it has been said that every part of a living animal's body undergoes renewal once in about three months; but this is not strictly correct. Every soft part of the body may,

indeed, probably does, come under that process of regeneration in the time specified; gelatine, or the soft portions of the bones, inclusive.

The composition of our bodies alters with age, notwithstanding. During life, something goes on comparable to the furring of a tea-kettle, or the fouling of a steam-boiler. Hard, earthy concretions deposit in the heart, impeding its movements; in the arteries, impairing the alacrity needful to their vital functions. Vainly are the soft portions of our bodies renovated whilst those earthy depositions continue to be formed. The longer we live, the more brittle we grow. Young children can fall about, rarely breaking their bones; whereas old people often fracture their limbs by the mere exertion of turning in bed. Bearing in mind the fact that as we grow older we become more brittle, this is explained; and being explained, shall not our wonder rest with those who marvel that life's fire burns so long?

Consider what the animal machine has to do to keep itself alive and going; the heart above all. Taking an average on different ages, the human heart may be considered to beat one hundred thousand times in twenty-four hours. A human adult is considered to hold from fifty to sixty pounds of blood; and this has to be kept in continuous motion by the pulsating heart to the very end of life. The mechanical labor is enormous. Were a mechanic to devise a machine of ordinary materials for overcoming the weight of fifty or sixty pounds, as happens to the blood, repairs would be incessant, and the machine would soon wear out.

The hardest work human hands used to do, is now done mainly by machinery. Labor is more productive, and is therefore better rewarded. Less than three hun-

dred years ago a good mechanic in England had to work more than nine days to earn a bushel of wheat. Two hundred and fifty years ago he could earn it in little more than five days; and fifty years ago in a fraction more than one day. But in the United States, in the summer of 1868, such a man earned a bushel of wheat in half a day. Thus the mechanic's day, which produced three and a half quarts of wheat in 1569, now produces sixty-four quarts, eighteen times as much.

The difference reckoned in clothing is at least as great. Two hundred years ago a mechanic could earn seventeen cents a day in silver money, and the coarsest shirt cost sixty-two cents, or three and a half day's work. Reckoned in animal food, the improvement is, of course, greater still; such food having been a rare luxury among day laborers, and even mechanics, until quite recent times.

The following comparison, between "the good old times of Queen Bess," as tradition calls them, and the present, is very suggestive: "In the days of Queen Elizabeth, the pride of English history, when national prosperity and personal comfort were supposed to have attained their highest point, the average wages of good mechanics were five shillings, about one dollar and twenty-five cents a week. Wheat was then—1565 to 1599—five shillings and ten pence per bushel; the mechanic could then earn a bushel of wheat in seven days, a coarse linen (dowlas) shirt in five days and a half, a common waistcoat in seven days and four-fifths, a pair of strong shoes in eight days and four-tenths, a stuff gown for his wife in seven days and four-fifths, a linsey woolsey petticoat in five days and two-fifths, a check apron in two days and a half, a pair of shoes in four days and a

half, and a pair of stockings in one day and four fifths. Comparing these wages of the workman with the cost of clothing and other obtainable necessities of life, it is easy to see how small an amount of the comforts they could obtain, how meagre must have been the sustenance of their families, and how slight an opportunity they enjoyed of developing a sound constitution, and of sustaining themselves against the causes of disease. At the present time a good mechanic earns three or four times the cost of his board, and has three or four times as large a proportionate surplus for the support of his family, or for investment for future use; and labor, in all its varied forms, receives a much larger reward in sustenance, in comfort, in means of health and vigor, at the present, than was paid in any of the former ages of the world."

These changes have had an almost inconceivable effect on the character and life of the people. There are fewer adventurers, fewer paupers, fewer criminals. There is less sickness, not only because of better knowledge of the laws of health, but because a well-fed population resists disease of every kind, when one that is poorly fed would be swept away by it. Moreover, abundance is accompanied by leisure, culture, taste and the kindly influences of home life and of society. The power of brute force and of selfish cunning has diminished. Sensitiveness and sympathy with others' suffering have grown, and have destroyed or driven into disrepute the passion for brutal shows. The awful famines and wide-wasting pestilences of the middle ages have become impossible. The value of human life and that of human enjoyment, as they are now esteemed, are truly modern ideas in the general mind. There has necessarily been

a diminution of sensuality and vice, and of all the causes of vital weakness and premature death which follows them.

In nothing has the change been more marked than in the falling off of infant mortality. For example: "In Geneva, of all the deaths, forty-four per cent. in the sixteenth century, and twenty-five per cent. in the nineteenth century, were of children under five years. Of all the deaths in London, those of infants under one year were, from 1730 to 1749, 74.5 per cent. of the total mortality; from 1790 to 1809, 41.3 per cent.; and from 1850 to 1860, 29.58 per cent. In France the deaths of infants under one year were, from 1800 to 1815, 22.48 per cent.; from 1830 to 1840, 20.58 per cent., and from 1850 to 1860, 18.92 per cent. of the mortality at all ages."

That the improved chance of infants for life depends largely on the average comfort of the people, is shown by the fact that where the distribution of property is most equal, that chance is always greatest. For instance, in Massachusetts, Vermont and Connecticut, the bills of mortality show that a smaller proportion of the whole people die in infancy than in almost any other part of the world; and if the children of poor immigrants were left out of the calculation, and only those of the native born included, the infant mortality of New England is the lowest on the globe. Yet even in Massachusetts the number of deaths among the children of the poor is frightful. In the Boston cemetery for the poor half the deaths were of children not thirty-three months old; while in Mount Auburn, the last home of the prosperous, one-half had passed their thirty-third year.

Men ought to live, Dr. Jarvis tells us, to be eighty years old. But they actually die much sooner, as these

facts show : "The average longevity of those who died, within the latest recorded years, was, in Massachusetts, 28 years and $3\frac{2}{3}$ months; Vermont, 36 years and 5 months; Sweden, 29 years and 2 months; England, 29 years and $2\frac{1}{2}$ months; France, 35 years and 11 months; Spain, 24 years and 4 months; Norway, 36 years and $6\frac{1}{2}$ months. The expectation of life at birth, or the average longevity that is and will be enjoyed by all the children born, is, in England, 40 years and $10\frac{1}{2}$ months; in France, 36 years and 1 month; in Sweden, 43 years and 5 months; and, by males, in the United States, 41 years; instead of 80 years."

Indeed, at every point at which the subject is opened, it is seen that the improvement of vitality is but beginning. The influences within the control of men by which life may be prolonged are as yet little understood and less used. Hereafter, the best measure figures can give of the advance of civilization will be found in the average length of human life; and to one who has given careful attention to the facts already collected, it will not seem extravagant to predict that each coming generation will make some progress in the matter, each will enjoy a larger, richer and longer life; and that the time may come when full grown men, entering on active life, can reasonably, and on the average, expect to do fifty years of good work for mankind.

But with all the consideration which has been given to the subject, it is still a mooted question how long a man may live under the most favorable circumstances. Some very learned naturalists insist that he is not an animal, while others argue, with equal skill, that in organic structure and instinct he is. In antediluvian times men lived many centuries, if there is no mistake in the sacred

records; but in these days it is a matter of astonishment to see a human being who has attained one hundred years. Hufeland advanced the opinion that man's limitation of life was two hundred years, very much shortened by habits, customs and abuse of the stomach and brain by violations of physiological laws. It is a curious circumstance that philosophers have very accurately determined the death period of domesticated animals, birds and wild beasts, and yet can not determine the life period of themselves.

Professor Farraday, of England, one of the greatest scientific men of his day, who died a few years ago at an advanced age, was of the opinion that the natural age of man is one hundred years. The duration of life he believed to be measured by the time of growth. He says: When once the bones and epiphyses are united, the body grows no more, and it is at twenty years that union is effected in man. In the camel it takes place at eight, in the horse at five, in the lion at four, in the dog at two, in the rabbit at one. The natural termination of life is five removes from these several points. Man being twenty years in growing, lives five times twenty years—that is, one hundred; the camel is eight years in growing, and lives five times eight years—that is to say forty years; the horse is five years in growing and he lives twenty-five years, and so with other animals. The man who does not die of sickness lives everywhere from eighty to one hundred years. Providence has given to man a century of life, but he does not attain it because he inherits disease, eats unwholesome food, gives license to passions, and permits vexations to disturb his healthy equipoise; he does not die—he kills himself. He divides life into two equal halves, growth and decline, and these

halves into infancy, youth, virility and age. Infancy extends to the twentieth year; youth to the fiftieth, because it is during this period that the tissues become firm; virility from fifty to seventy-five, during which the organism remains complete; and at seventy-five old age commences to last longer or shorter time, as the diminution of reserved forces is hastened or retarded. The shortness of life is very often owing to the irregularity of the liver. An ingenious author asserts that the length of a man's life may be estimated by the number of pulsations he has the strength to perform. Thus, allowing seventy for the common age of man, and sixty pulses in a minute for the common measure of pulses in a temperate person, the number of pulsations in his whole life would amount to 12,507,520,000; but if, by intemperance, he forces his blood into a more rapid motion, so as to give seventy-five pulses in a minute, the same pulses would be completed in fifty-six years; consequently, his life would be reduced fourteen years.

LONGEVITY.

If men were as intent on the means of preserving health and of living to an advanced age as they were of acquiring wealth, social and political distinction and power, the records of longevity would soon be enlarged from a few pages—their present space—to many bulky volumes; and there would be no longer any cause of wonder at the lengthened space of years granted to the patriarchs. What is now exceptional would be a much more common occurrence. The average duration of life is greater in most civilized communities, at the pres-

ent time, than it was a century ago, owing to improvements, imperfect as they are, in public and private hygiene. "What is the natural, ordinary and normal duration of life of man? This is the question proposed by Flourens, in his philosophic treatises on human longevity. He begins by quoting the words of Buffon, that "the man who does not die of accidental diseases, will live in every place ninety to a hundred years."

Haller, the eminent physiologist, made a collection of more than a thousand cases of persons who lived to a hundred years and upward. A more pointed argument in proof of man's ability to be a centenarian is furnished by the example in their own persons of Fontanelle, so long the Secretary of the French Academy, and of Cornaro, the noble Venetian. The sanitary history of Cornaro is the more remarkable from the fact that his constitution, naturally weak, was broken down by excesses to such a degree that when he was thirty-five years of age his physicians did not believe he could live two years longer. Taking warning at once, he set about an entire reform. He weighed his food and measured his drink, taking only twelve ounces of the former and fourteen ounces of the latter daily; he kept regular hours and avoided all extremes of temperature and exercise, while at the same time he cultivated literature, and actively engaged himself in the improvement of his estate, and in devising means for embellishing and fortifying his native city, Venice. Cornaro not merely lived, but he enjoyed his long life in the midst of a large family circle of children and grandchildren.

In a volume on Human Longevity, by James Easton, now on our table, the author gives the name, age, place of residence and years of decease, of 1712 persons,

who attained a century or upward. This list covers a period of 1733 years, or from A. D. 66 to 1799, and gives one case of a person who reached 185 years. An industrious searcher might duplicate Mr. Easton's record by the names of centenarians who have died in the present century.

If we pass from the historical to the physiological study of longevity, we shall find that there is no necessary wearing out of the human body or of its several organs during the successive stages of life, from infancy to old age, to interfere with its lasting a hundred years and more. Proportions have been observed between the periods of growth and the duration of life both in man and animals, which would go to show that the *ordinary* life of the first should be laid down at a hundred years, and the *extraordinary* or unusual life, from a hundred and twenty to two hundred years.

The growth of the body, and particularly of the bones, is not completed before the age of twenty years. The quintuple of this age is that which man might easily attain with proper care. This proportion is found to hold good in animals—the horse, camel, ox, dog, &c. The ordinary or medium life of an animal may be greatly extended, even to double the period, as in the horse, the history of which, as given by Buffon, shows it to have lived fifty years. Haller says that he knew of several instances of dogs living twenty, twenty-three and twenty-four years. Homer must have had the same belief, when he makes the dog of Ulysses recognize his old master after an absence of twenty years. Fontanelle relates the history of a parrot that lived a hundred and twenty years, and we have the authority of Willoughby for telling, as an undoubted fact, that a swan lived an hundred

years. We are afraid that this story must go with that repeated by Buffon, of a crow which, "as proved by observation," reached the age of 1,080 years. What were the circumstances under which persons have attained the greatest age? What are the conditions on which long life is obtainable? These are questions that naturally follow the inquiry of Flourens, above quoted.

A writer in the *Atlantic Monthly* proves by statistics that a man's longevity is in exact proportion to his educational attainments, provided his health has not been injured by over-mental exertion. It seems that increasing intelligence and decreasing war have prolonged the average length of life in Europe from twenty-five years in the seventeenth century, to thirty-five in the eighteenth, and forty-five in the nineteenth. The best educated communities are the longest lived, and the best educated soldiers live amazingly longer than the more ignorant, and seem to wear a charmed life, not so much against bullet and bayonet as against the effects of disease, privation, and even severe wounds, on their constitutions and lives.

Similar statistics show that the physical power of civilized men is greater than that of savages, and all help to explode the notion that somehow the race is running out, and that, as the mental powers increase the body grows weak. Doubtless there may be too little use of the body, too much of the brain and nerves in some occupations, but, on the broad scale, the tendency of culture and civilization is to harmony of development, to health, and greater power. Otherwise we had best go back to the savage state, and grant that the lower life is better than the higher. We remember that, a few years since, a wealthy English nobleman proposed a

tournament, in which the gentry should ride the lists clad in ancient armor, and armed with lances of the knights of the days of chivalry. For this purpose there was a general hunting up of ancestral armor in the old castles. To the surprise of all it was found that the coats of mail in which the forms of the old knights were clad, were *too small* for men of the same class in society to-day. The lusty Englishman of to-day who travels over burning deserts and icy seas for pleasure or knowledge, laughing at toil as he goes, would tire out any *knight-errant* of that famed old time. The vast labor of our Pacific Railroad puts the Egyptian Pyramids in the shade, and we saw a late mention of stones used in some modern masonry larger than the great masses in temples and pyramids on the Nile.

At the meeting of the American Public Health Association, a carefully prepared paper was read by Dr. Nathan Allen, of Lowell, Mass., upon what he denominated the "Law of Longevity." This gentleman has devoted special attention for many years to physiology in its bearings upon the changes and increase of population, and is the author of several pamphlets upon this and kindred subjects, which have attracted much attention.

The prerequisites to, or necessary conditions of longevity, Dr. Allen discussed under three heads: first, sound constitution; second, laws of inheritance; and third, obedience to the laws of hygiene. In order to secure good health and long life, a sound and well balanced physical organization is found indispensable. But where is our guide or standard to test this soundness or balance? We have only approximations towards this standard, and a great diversity of opinions respecting

them, because there is no universal type or perfect model upon which to base our judgments.

In some respects the human body, in its normal state, may be compared to a perfect machine made of many complicated parts. How different the working or running of such a machine from that of one imperfectly constructed and unequally balanced? The one seldom needs repairs; the other, frequently. It is so in reference to the body. Whenever a certain organ or class of organs are relatively too large or too small, or are exercised too much or not enough, causing a want of harmony in their action, there must be greater liability to disease. How often it happens that some slight derangement or trifling weakness operates as an entering wedge to the most serious and dangerous diseases? Hence the importance of a sound and well-balanced constitution, and the nearer the approximation can be made to it the better. This is indispensable, not only for good health, but for long life. But such a constitution can be secured only from long-lived ancestry. This accords with universal experience, as well as with all the principles of physiology. If we apply the well-known law, that "like begets like," to the healthiest families found, and observe it through several generations, the result will be, that we obtain very sound and healthy constitutions.

Longevity is not dependent so much upon climate or food or employment as upon the physical organization itself. It is true these have a powerful influence upon health, but they are secondary agents. The general law exists in the body, and not outside. The laws of inheritance are a part of it; so are the principles of hygiene. It is not a mere theory or speculative hypothesis, but can be easily comprehended and applied.

It points out the true sources and means of health and life, and that there is no chance or mystery in them. It shows that all the changes that occur in the human system are governed by law; that disease of whatever character, or wherever found, is a violation of law, and all treatment, whether provided by nature or not, must be viewed as an agent to repair the injury. It expounds correctly the great laws of inheritance which furnish the groundwork—the prerequisite, for good health and long life. It teaches the absolute necessity in the outset of possessing a sound constitution—a well-balanced organization. It shows the relation of and importance which human agency holds in propagating a sound and healthy stock. It presents constantly before us for imitation that perfect standard and image in which man was created, together with an embodiment of those laws and conditions with which we must comply in order to secure the greatest amount of happiness and the longest duration of life. It teaches every individual more clearly what are the peculiarities and weaknesses of his own constitution, as well as what are his particular dangers or liabilities to disease. It is this exact, this definite and personal knowledge that may be turned to the greatest account in the preservation of health. If every individual could thus be made thoroughly acquainted with his own physiology, together with the laws of hygiene in his own case, we should soon see a most surprising diminution of sickness as well as of early mortality.

G. M. Beard, M. D., has collected statistics relating to longevity in different countries at different periods. His most important deductions are given below; they are especially interesting as indicating that civilization, with

its myriad improvements, its fighting with faith against the universal enemies, disease and death:

Figures show that all classes live fifty per cent. longer under the modern civilization of England and the United States than the most favored brain-working classes lived under the Roman civilization. In all nations the higher classes live longer than the humble.

Increase of longevity is shown by comparison not only of ancient and modern times, but also the earlier with the latter stages of our modern civilization. Thus in Geneva, where vital statistics have been carefully kept for nearly four centuries, the expectation of life

in the 16th century was 21.21 years.

“ 17th “ “ 25.67 “

“ 18th “ “ 33.62 “

from 1814 to 1833 “ 40.68 “

This comparison shows an increase of almost one hundred per cent. in three centuries. In England and Wales mortality has diminished *two-fifths* in a single century—from 1720 to 1820. Comparing cities alone we find even greater increase. The rate of mortality in Dublin at the beginning of the eighteenth century was 1 in 22 of the population. In the middle of the nineteenth century, 1 in 38 of the population. The rate of mortality in Boston

in 1776 was 1 in 28 of the population.

“ 1864 “ 1 “ 37 “ “

The rate of mortality in Boston

from 1728 to 1752 was 1 in 21.65 of the population.

“ 1846 to 1865 “ 1 in 42.08 “ “

A decrease of about fifty per cent. in one century; similar decrease has been observed in Paris and London.

Statistics would seem to show that brain work is *per se* favorable to health and longevity. This is, however, by no means the only cause of this increase of longevity. We should take into consideration various other causes that are associated with and flow from increased mental activity of nations. Among these may be mentioned:

1. INCREASED COMFORTS.—Civilization gives us better food and drink, better homes and clothing, better surroundings every way than barbarism. Fruits and grains have improved in quality, and animals used as food have increased in size—and withal there has been great progress in the art of cookery.

2. DIMINISHED HOURS OF LABOR, WITH BETTER REWARD.—Excessive muscular labor is more injurious than excessive mental labor, especially when it is ill paid and pursued under depressing circumstances. Machines have benefited hard labor some.

3. IMPROVED MORALS.—Intemperance and licentiousness, the two great foes of the human race, have both diminished with the advance of civilization. In the middle ages Europe was one brothel, and even half a century since, licentiousness was not a disgrace even in the highest circles in England.

4. ADVANCE IN SANITARY AND MEDICAL SCIENCE.—The types of disease have changed, and some forms have passed away. The plague which in the seventeenth century destroyed thousands every year, and the "black death," which destroyed 25,000 in 1348 and 1349, are now unknown. Small-pox is but 1-10, measles 1-5, fevers 1-4, and consumption a little more than 1-2 as fatal now as in the seventeenth century. Nervous diseases have lately increased in severity and variety, but they are much less fatal than fevers and epidemics. Mortality of

infants, which was once fearful, has diminished an enormous per cent. Meanwhile hygiene and medical science, in all its branches, has rapidly advanced, and every week witnesses greater success in our methods of preventing and treating disease.

Some very curious facts have recently been announced in regard to discoverable signs of long life. These facts have resulted from scientific investigations set on foot by a life insurance office. The most interesting feature in a learned series of essays on the physical signs of longevity in man, is the announcement that short persons live longer than tall ones; and women on an average, all other things being equal, live longer than men. Married persons of both sexes have a longer expectation of life than the unmarried; and unmarried women live longer, on an average, than bachelors; yet both fall short of the amount of life they each might reasonably hope for in matrimonial relations. Longevity is transmitted in some families. Physiology has not been able to explain the conditions on which it depends; but medical writings and vital statistics establish the fact beyond contradiction, that length of days is an actual inheritance.

Coming to investigate the circumstances determining longevity, as illustrated by the published record of long-lived people, there is difficulty in arriving at conclusions. I certainly do not find that teetotalism stands illustrated. Most of the patriarchs, the circumstances of whose lives I have hunted out, were free, but not intemperate livers. We have seen how pleasurably Old Jenkins records his experiences of monastic hospitality, in which he participated; the quarter yards of roast beef, and the black jacks of strong liquors. Some of the Scotch patriarchs

I find took "alcoholic poison," but their longevity was in spite of, not because of, such habits. Old Thomas Parr confesses to a liking for ale, which he took in moderation, but he was what we should call abstemious in the matter of eating. He rarely partook of meat, but lived mostly on cheese, whey, and curds,—white meats as he called them. I find the records of many an individual who lived to a patriarchal age, though what one may call a free drinker, not a drunkard; but I find not one who was a heavy, gluttonous eater.

Perhaps the conclusion will be evolved out of long-life records, that heavy eating (gluttony) is at least as potent as drunkenness in conducing to shortness of life. Somewhere that very witty writer, Sydney Smith, has published his lucubrations on the matter of unnecessary eating. Towards the end of his life he calculated up the amount of animal food he had eaten beyond need. In imagination he built up all the sundry little bits of beef, mutton, veal, etc., into the original oxen, sheep, calves, etc. In imagination he pictured to himself these animals passing before him in an angry legion, upbraiding him that he had eaten them unnecessarily.

The published and available records of extreme old age lend confirmation to the belief, that among well-to-do people more animal food is consumed than accords with age and longevity. Nearly all the very old people whose lives have been recorded, were in the lower or middle ranks of life; hardly above want, as we should now say.

With regard to locality and climate, extreme heat and extreme cold are less favorable to longevity than are the conditions of a temperate clime; nevertheless, Eaton's catalogue has records of men who have grown very aged

in India, the West Indies, in Sweden, and in Russia. Buffon places the mountainous districts of Scotland in the very first rank for longevity. The traveler Pallas states that the inhabitants of the mountainous districts in the province of Isesk, in the north of Siberia, live to a great age, people of one hundred years being very common; he saw an invalid soldier aged one hundred and twenty. In respect to Scotland, Kentigern, also known as St. Mungo, and founder of the bishopric of Glasgow, is said to have lived to one hundred and eighty-five. Eaton's book contains records of 1,712 persons of extreme longevity, from different parts of the world. Therein is set down the name, age, place of residence, etc., of all these 1,712 persons who had attained to a hundred years and upwards. One hundred and seventy of these are said to have been natives of Scotland. The two oldest are Kentigern, otherwise St. Mungo, and Peter Toston, of Temeswar, in Hungary, whose ages are stated to have been equal—namely, one hundred and eighty-five years.

Nothing is better established in the domain of vital statistics than this, viz., a very long body, with short legs, under ordinary circumstances, indicates a longer lease of life than when the lower limbs are longer and the body short. In a large, long body, the vital organs within are perfectly developed and act more freely and regularly. In a narrow chest and a short trunk the functions of respiration and digestion are less perfectly accomplished.

Dr. Lambert, in a recent lecture, said that when a person measures six or more inches through the head from side to side, just in front of the upper part of the ears, where they are attached, it will be found that he had an-

cestry on his father's side reaching ninety years or upward. If the caliber measure from the bridge of the nose to the orifice of the ear be five inches, his ancestry on his mother's side will average ninety. If the whiskers are naturally lighter than the hair and eyes, a person takes in his longevity after the mother's side, if darker, after the father's side.

I have always been greatly interested in the narratives given in the Bible, of the lives and deaths of the patriarchs. Let me enumerate some of their characteristics: Their habits in all respects were simple. They lived—dwelt in tents—in the open air. They ate food simply cooked. They were tillers of the soil and herdsmen. They retired early to rest. They slept sweetly all night. They rose early in the morning. Their medicines, at most, were *simples*. They instinctively knew the value of abstaining from food on occasion, and they enjoined it from generation to generation till at last it came to be a religious ceremony. Their children were scarcely ever sick, and when they were they did not die. Begin at Genesis and see how far into the world's life one has to penetrate before the death of children is a given fact, stated without surprise. From such causes as these, men lived to old age, not *our* limit of human life, but a greatly advanced life over ours.

The physical condition of centenarians was the subject of a paper read at a recent meeting of the Anthropological Institute, by Sir D. Gibb, Bart., M. D., who stated that he had examined six persons, each certainly one hundred years old or over, in all of whom he found the organs of circulation and respiration in a condition resembling that belonging to the prime of life rather than to old age. None of the changes usually noticed in per-

sons of the age of seventy could be observed. The intelligence was perfect, and the integrity of the nervous system complete.

The prudent live longest. Hufeland, the physiologist, tells, as follows, how the man who is likely to live long is characterized: He has a proper and well-proportioned stature, without, however, being too tall. He is rather of the middle size and somewhat thick-set. His complexion is not too florid; at any rate too much ruddiness in youth is seldom a sign of longevity. His hair approaches rather to the fair than to the black. His skin is strong, but not rough. His head is not too big; he has large veins in the extremities; his shoulders are round rather than flat; his neck is not too long; his abdomen does not project; his hands are large but not deep, clifty; his foot is rather thick than long; and his legs are firm and round. He has a broad, arched chest, a strong voice, and the faculty of retaining his breath for a long time without difficulty. There is harmony in all his parts. His senses are good, but not too delicate; his pulse is slow and regular; his stomach is excellent; his appetite good and the digestion easy. The joys of the table are not to him of importance; they tune his mind to serenity, and his soul partakes in the pleasure which they communicate. He does not eat merely for the sake of eating, but each meal is an hour of daily festivity. He eats slowly, and has not too much thirst, the latter being always a sign of rapid self consumption. He is serene, loquacious, active, susceptible of joy, love and hope, but insensible to the impressions of hatred, anger and avarice. His passions never become violent or destructive. If he ever gives way to anger, he experiences rather a useful glow of warmth, an artificial and gentle fever,

without an overflowing of the bile. He is fond, also, of employment, particularly calm meditation and agreeable speculations. He is an optimist, a friend to nature and domestic felicity. He has no thirst after honor or riches, and banishes all thoughts of to-morrow.

THE COMMENCEMENT OF OLD AGE.

What are the signs of natural decay? When does old age commence? The natural history of individual death, without disease, is one of the subjects which it remains for modern physicians to study. When does the vital machine begin to wear out in the typically healthy man, and what are the ways by which normal decay, inevitable death, invades the aged man? With our modern means of precise observation and minute pathological research we should be able now to lay the foundation for the answer to this most important question. The subject is suggested to us by a most thoughtful, able, and well written thesis on death, considered from the etiological points of view, by Dr. Acosta, of Paris, which will repay the perusal of reflective men. Discussing the difficulty of determining the commencement of old age, Dr. Acosta reminds us that, while the Greeks regarded the age of 49 (seven times seven, their climacteric number) as the culminating point of human strength, and, at the same time, as the commencement of decadence, M. Flourens holds that decadence does not commence until the 70th year—an age which the Chinese, according to Sir John Bowring, regards as a metaphorical one, calling those who have attained to it “rare birds,” and men of 90 years old “loiterers.” The two climacteric ages of the

Arabs were 63 and 81, being the multiplication of nine (their magic number) by seven and nine. The age of 63 was considered so critical that it was called the grand climacteric, and the ancients were accustomed to mutually congratulate each other when they had passed it. Quetelet, to a certain extent, admits the danger of this critical period, for he says: "From 60 to 65 years of age vitality loses much of its energy—that is to say, the probability of continuing to live diminishes greatly." M. Reveille Parise, while in common with some other physiologists allowing the existence of two sources of strength in the constitution, which he names force in reserve and force in use, believes that the physiological fact which reveals old age is the progressive diminution of reserved force so superabundant in youth. There certainly exist some organizations which are proof against the ravages of time and the attacks of sickness and death. Some men at the age of 80, 90, even 100 years, have preserved their sensorial and intellectual faculties, and great mental energy, even to the last days of their life. A complete list of them would be too long. We will, therefore, only mention a few names. Plato died at the age of 81, pen in hand. Gorgias continued his literary labors to the age of 107. Socrates wrote his famous Panegyric of Athens in his 94th year; Theophrastus his Characters at 99; Cato learned Greek after his 60th year; Cicero composed his charming work, *De Senectute*, one year before his violent death; Voltaire wrote a great number of tragedies, *Tancrede* and *L'Orphelin de la Chine*, among others worthy of his best time, at the age of 65, and he came to Paris in his 84th year to give himself an intellectual treat, the representation of his tragedy of *Irene*. There are also still living

members of our profession, as well as the literary, scientific, and political world, who would illustrate the list of Nestors, remarkable both for their longevity and for the intellectual labors to which they continue to devote themselves. Disraeli has said, "Old age has been a thing unknown to many men of genius."

From the age of forty to that of sixty, a man who properly regulates himself may be considered in the prime of life. His matured strength of constitution renders him almost impervious to the attacks of disease, and all his functions are in the highest order. Having gone a year or two past sixty, however, he arrives at a critical period of existence; the river of death flows before him, and he remains at a standstill. But athwart this river is a viaduct, called "The Turn of Life," which, if crossed in safety, leads to the valley "Old Age," round which the river winds, and then flows beyond without a boat or causeway to affect its passage. The bridge is, however, constructed of fragile materials, and it depends upon how it is trodden whether it bend or break. Gout, Apoplexy, and other bad characters are also in the vicinity to waylay the traveler, and thrust him from the pass; but let him gird up his loins, and provide himself with perfect composure. To quote a metaphor, the "Turn of Life" is a turn either into a prolonged walk or into the grave. The system and power, having reached their utmost expansion, now begin either to close like flowers at sunset, or break down at once. One injudicious stimulant, a single fatal excitement, may force it beyond its strength; whilst a careful supply of props, and the withdrawal of all that tends to force a plant, will sustain it in beauty and in vigor until night has nearly set in.

Let all bear in mind that all the laws of life must be strictly obeyed if life is expected to be a pleasure, and these laws cannot be disobeyed with impunity. And he who runs the risk of violating them will sooner or later feel the effects of his dangerous experiment.

Fatuity from old age cannot be cured, but it may be prevented by employing the mind constantly in reading and conversation in the evening of life. Dr. Johnson ascribes the fatuity of Dean Swift to two causes: first, to a resolution he made in his youth that he would never wear spectacles, from the want of which he was unable to read in the decline of life; and, secondly, to his avarice, which led him to abscond from visitors, or deny himself to company, by which means he deprived himself of the only two methods by which new ideas are acquired or old ones renovated. His mind, from these causes, languished for the want of exercise, and gradually collapsed into idiotism, in which state he spent the close of his life in a hospital founded by himself for persons afflicted with the same disorder, of which he finally died.

Country people, when they have no relish for books, when they lose their ability to work, or to go abroad from age or weakness, are very apt to become fatuitous, especially as they are too often deserted in their old age by the younger branches of their families, in consequence of which their minds become torpid from the want of society and conversation. Fatuity is more rare in cities than in country places, only because society and conversation can be had in them upon more easy terms; and it is less common among women than men, only because their employments are of such natures as to admit of their being carried on by their firesides, and in a sedentary posture.

No one denies that it is wise to make provision for old age, but we are not at all agreed as to the kind of provision it is best to lay in. Certainly we shall want a little money, for a destitute old man is, indeed, a sorry sight; yes, save money by all means. But an old man needs just that particular kind of strength which young men are apt to waste. Many a foolish young fellow will throw away on a holiday a certain amount of nervous energy which he will never feel the want of until he is seventy, and then how much he will want it! It is curious, but true, that a bottle of champagne at twenty will intensify the rheumatism at three score. It is a fact that overtaking the eyes at fourteen may necessitate the aid of spectacles at forty instead of sixty. We advise our young readers to be saving of health for their old age, for the maxim holds good in regard to health as to money—"Waste not, want not." It is the greatest mistake to suppose that violation of the laws of health can escape its penalty. Nature forgives no sin, no error; she lets off the offender for fifty years sometimes, but she catches him at last, and inflicts the punishment just when, just where, and just how he feels it most. Save up for old age, but save knowledge; save the recollection of good and noble deeds, innocent pleasures, and pure thoughts; save friends; save love. Save a rich store of that kind of wealth which time can not diminish, nor death take away.

Old age is a public good. It is indeed. Don't feel sad because you are old. Whenever you are walking, no one ever opens a gate for you to pass through, no one ever honors you with any kind of help, without being himself the better for what he does; for fellow feeling with the aged ripens the soul.

HOW TO LENGTHEN LIFE.

Human life is made up of a succession of periods of growth and decay. From birth there is a gradually ascending series to maturity, and from thence a descending one to death. Nature has undoubtedly affixed to each epoch a certain duration, the limit of which can never be exceeded, and is seldom attained.

It is impossible to ascertain with precision the length of the separate parts or the aggregate whole of a natural human life, for such has never been passed within historic times. The greatest age to which man has ever attained must fall short of the number of years to which he might have reached if he had been originally constituted and continued to exist in perfect conformity with nature's laws. Thomas Parr, who died at the age of 152 years and 9 months, and had lived under nine kings of England, may be said, in comparison with the probable duration of a perfectly natural life, to have been cut off in the very flower of youth. He, in fact, was prematurely destroyed by a surfeit of royal indulgences at the court of Charles I., where he had been summoned on account of the rarity of his great age. Parr's body after his death was examined by the famous Harvey, the discoverer of the circulation of the blood, who found the internal organs in the most perfect state, without the least symptom of decay. His cartilages were not yet turned into bone, as they are ordinarily in old people. It was evident that he died from plethora caused by his too greedy enjoyment of the royal cheer.

That it is possible to prolong the duration of life by human means no one will question. The average age of man, yet so contemptibly small, has been greatly aug-

mented by the skill and appliances of modern art and science. The improved hygiene of civilized communities has more than doubled the rate of life during the last hundred years. Each individual, moreover, has it in his power to increase the number of his years; and this not only by avoiding the obvious causes of ill health, to which most rational people take care not to expose themselves, but by following certain rules, less apparent but equally simple, which few even of the wisest think of ascertaining or following.

It should be a great point with all to strive to prolong each period of the ascending series of development, for this will not only prolong life directly, but indirectly, by protracting the descending series of decay. In childhood and youth particularly, it behooves us to cherish with the utmost care the accumulating fund of vitality. No organ should be tasked beyond its power, yet each should receive the exercise proportionate to its gradual development. No one should consume in childhood and youth what should be stored up for the use of maturity and old age. "The energy of life," says Hufeland, in his German way, "will be in an inverse ratio with its duration; or the more intensively a being lives, the more will its life lose in extension. The expression *fast living*, which, as well as the thing itself, is at present so common, is not, then, altogether improper. One may certainly make the process of vital consumption, whether it consists in labor or enjoyment, more or less rapid, and thus live either fast or slowly. The less intensive the life of a being is the longer will be its duration. If the intensive life of a plant be increased by heat, manure, and artificial means, it will expand itself to perfection more rapidly, but it will also soon decay."

The rule is simply this—when as a child act as a child, and do not put away childish things until you become men. All premature use of mind and body, and every attempt to shorten the natural periods of development, will be heavy drafts upon future years—so heavy, in fact, as seriously to diminish and possibly exhaust the fund. By lengthening and giving as full a development as possible to the epochs of childhood and youth, there will result a maturity so full of vigorous life that it will be capable of defying disease and repelling death, until wearied nature welcomes it as a sleep.

Each period of human life has its tendency to diseases of a particular organ. In infancy and childhood it is the stomach which, having the largest proportionate development, is most likely to be disordered; in adult life it is the lungs, and in maturity of age the head. This is, of course, a general and not an absolute law: and childhood, manhood and age are each liable to all varieties of malady, though more particularly to one kind that may be called its own. It is, therefore, an important rule for the enjoyment of long life to keep an especial watch at each period upon that organ which has the greatest disposition to disease.

Cultivate an equable temper; many a man has fallen dead in a fit of passion. Eat regularly, not over thrice a day, and nothing between meals. Go to bed at regular hours. Get up as soon as you wake of yourself, and do not sleep in the daytime, at least not longer than ten minutes before noon. Work always by the day, and not by the job. Stop working before you are very much tired, before you are “fagged out.” Cultivate a generous and accommodating temper. Never cross a bridge before you come to it; this will save you half the

trouble of life. Never eat when you are not hungry, nor drink when you are not thirsty. Let your appetite always come uninvited. Cool off in a place greatly warmer than the one in which you have been exercising; this simple rule would prevent incalculable sickness and save thousands of lives every year. Never resist a call of nature for a single moment. Never allow yourself to be chilled "through and through;" it is this which destroys so many every year, in a few days' sickness, from pneumonia, called by some lung fever, or inflammation of the lungs. Whoever drinks no liquids at all will add years of pleasurable existence to his life. Drinking at meals induces people to eat more than they otherwise would, as any one can verify by experiment; and it is excess in eating that devastates the land with sickness, suffering, and death. After fifty years of age, if not a day laborer, and sedentary persons after forty, should eat but twice a day, in the morning and about four in the afternoon; persons can soon accustom themselves to a seven hours' interval between eating, thus giving the stomach rest; for every organ, without adequate rest, will "give out" prematurely. Begin early to live under the benign influence of the Christian religion, for it "has the promise of the life which now is, and of that which is to come."

"To chew well and to walk well," said Bosquillon, "are the greatest secrets of longevity that I know of." One of the most pernicious habits that can be acquired is that of eating too fast. The loss of teeth is not necessarily conducive to a short life; if the imperfection in chewing is remedied by a more careful and slower process. Simplicity in diet is another great point. Two, or at the most three, dishes ought to suffice, but monotony should be avoided. There should be variety in

simplicity. It is also of importance to preserve a certain degree of regularity in repasts. The number of repasts may vary with age and constitution ; but three repasts, a light breakfast, a good dinner in the middle of the day, and a light supper, are admitted more favorable to health than late dinners, which leave the stomach unoccupied for a long interval and overloaded at night. It is of further importance that the mind should be at ease during meals. That which is pleasant promotes digestion ; everything that is the reverse is obnoxious. Plutarch declared laughter to be the best sauce. Exercise should precede alimentation, and immediately follow it.

An entertaining book of sporting gossip, recently published in London, under the odd title of "*Sportascrapiana*," gives, in the words of Capt. Horatio Ross, the secret of the remarkable preservation of his fine, vigorous physique to a late period of life. "I attribute it," he says, "in a great measure to having always kept myself in a state of moderate training. I have always lived well, and have never omitted, wherever I was, whether in town or country, whether the weather was fair or the reverse, to walk regularly eight miles, and generally twelve miles, every day of my life, unless I had an opportunity of going out shooting. I have also, for a great many years, been very particular in taking a sponging bath of cold water every morning." And now, at sixty-five, he can walk his fifty miles, at three and-a-half miles an hour, without fatigue, and he is still the best rifle shot in England.

The following interesting letter from William Cullen Bryant, gives an account of his mode of living :

NEW YORK, March 30, 1871.

To Joseph H. Richards, Esq.:

DEAR SIR: I promised some time since to give you some account of my habits of life, so far at least as regards diet, exercise and occupation. I am not sure that it will be of any use to you, although the system which I have for many years observed seems to answer my purpose very well. I have reached a pretty advanced period of life without the usual infirmities of old age, and with my strength, activity, and bodily faculties generally in pretty good preservation. How far this may be the effect of my way of life, adopted long ago, and steadily adhered to, is perhaps uncertain.

I rise early: at this time of the year about 5:30; in summer, half an hour, or even an hour, earlier. Immediately, with very little incumbrance of clothing, I begin a series of exercises, for the most part designed to expand the chest, and at the same time to call into action all the muscles and articulations of the body. These are performed with dumb-bells, the very lightest, covered with flannel; with a pole, a horizontal bar, and a light chair swung around my head. After a full hour, and sometimes more, passed in this manner, I bathe from head to foot. When at my place in the country, I sometimes shorten my exercise in my chamber, and, going out, occupy myself for half-an-hour or more in some work which requires brisk exercise. After my bath, if breakfast be not ready, I sit down to my studies until I am called.

My breakfast is a simple one—hominy and milk, or, in place of hominy, brown bread, or oat meal, or wheaten grits, and, in the season, baked sweet apples. Buckwheat cakes I do not decline, nor any other article of

vegetable food, but animal food I never take at breakfast. Tea and coffee I never touch at any time. Sometimes I take a cup of chocolate, which has no narcotic effect, and agrees with me very well. At breakfast I often take fruit, either in its natural state or freshly stewed. After breakfast I occupy myself for a while with my studies, and then, when in town, I walk down to the office of the *Evening Post*, nearly three miles distant, and after about three hours return, always walking, whatever be the weather or state of the streets. In the country, I am engaged in my literary tasks till a feeling of weariness drives me out into the open air, and I go upon my farm or into the garden and prune the trees, or perform some other work about them which they need, and then go back to my books. I do not often drive out, preferring to walk.

In the country I dine early, and it is only at that meal that I take either meat or fish, and of these but a moderate quantity, making my dinner mostly of vegetables. At the meal which is called tea, I take only a little bread and butter, with fruit, if it be on the table. In town, where I dine later, I make but two meals a day. Fruit makes a considerable part of my diet, and I eat it at almost any hour in the day without inconvenience. My drink is water, yet I sometimes, though rarely, take a glass of wine. I am a natural temperance man, finding myself rather confused than exhilarated by wine. I never meddle with tobacco, except to quarrel with its use.

That I may rise early, I, of course, go to bed early; in town, as early as ten; in the country, somewhat earlier. For many years I have avoided in the evening every kind of literary occupation which tasks the facul-

ties, such as composition, even to the writing of letters, for the reason that it excites the nervous system, and prevents sound sleep.

My brother told me not long since that he had seen in a Chicago newspaper, and several other Western journals, a paragraph in which it was said that I am in the habit of taking quinine as a stimulant; that I have depended upon the excitement it produces in writing my verses; and that, in consequence of using it in that way, I had become as deaf as a post. As to my deafness, you know that to be false, and the rest of the story is equally so. I abominate all drugs and narcotics, and have always carefully avoided everything which spurs nature to exertions which it would not otherwise make. Even with my food I do not take the usual condiments, such as pepper and the like.

I am, sir, truly yours,

W. C. BRYANT.

ART OF LONG LIVING.

The art of attaining to extreme old age, divested of all superfluous details, consists simply in the strict observance of the natural laws. Every day ought to be so apportioned as to permit of bodily exercise, useful employment of the intellectual powers, the cultivation and gratification of the moral and religious sentiments, the taking of food and sleep, and the gratification of the animal faculties; but the gratification of the organic and moral laws should, like the gratification of the animal faculties, be in moderation; all excess or abuse as invariably entails unhappiness, pain, or disease, as mod-

erate use insures the contrary. Every act that is conducive to health and happiness is also conducive to long life, while every infringement of the natural laws entails an opposite condition, and tends to shorten life. The strict observance of the natural laws is, then, the real and only secret of long life, always barring accidents, which are beyond the control of human provision. But even here, Providence, by implanting the feeling of caution in human beings, has put it in their power to greatly avoid misfortunes, by teaching them not to place themselves in situations or positions in which such are likely to occur.

There are, however, many details in the due observance of the organic and moral laws; and hence those who do not possess the secret of the simple basis upon which unhappiness, pain, disease, and short life depend—the infringement of the natural laws—have, from the days of Galen and Hippocrates down to those of Dr. Noirot, directed their intelligences to the elimination of such acts and things as are injurious to health, or are productive of disease, according as they present themselves, rather than upon the sound and simple basis of considering man and his constitution as placed in regard to himself and to external objects.

There is no question that man does not live so long as, in a normal condition of things, he ought to do. God praised Solomon because he asked for wisdom instead of long life. Why so? Because wisdom—that is to say, the strict observance of the natural laws—entails of itself long life. Roger Bacon believed that man could live a thousand years, if he only knew how to economise his provision of vital force. The celebrated physiologist, Flourens, also deduced, from his study of the nervous

centres, that man ought to live much longer than he does.

Long life is so exceptional a thing, that the Greeks and Romans used to chronicle all remarkable cases of longevity. Hensler and other writers have shown that the year before Abraham consisted of only three months, that it reckoned eight after the time of the Patriarch, but that it only counted twelve after the time of Joseph, who introduced the Egyptian method among the Jews. The age of Methuselah presents, then, nothing so very extraordinary when we proceed upon this calculation. It was after the era of Joseph that the prophet sang: "The days of our years are threescore years and ten, and if by reason of strength they be fourscore years, yet is their strength labor and sorrow; for it is soon cut off, and we fly away."

It is the easiest thing in the world, perhaps, to secure a long life, provided there is a moderately good constitution to start with, and provided also no accident intervenes. Yet how few there are who seem to be aware of this! If persons are to be judged by their conduct, indeed, we might conclude that nothing could be done to prolong life, but that it depended entirely on chance whether adult years were attained—whether death came at forty, or whether existence was prolonged to the scriptural "three score years and ten."

The laws of life, however, are as immutable and regular as those of astronomy. Whoever lives according to those laws may reasonably calculate on a good old age. Whoever systematically violates them may as certainly expect to shorten his existence. The human body is, in truth, but a machine; and, like all other machines, it may be worn out before its time by abuse and neglect.

Excesses on the one hand, or want of exercise on the other, will tear it prematurely to pieces, or allow it to rust away. Too little work, or too much, will alike prove fatal to a prolonged existence.

Americans violate the law of life principally through their excesses. In early manhood excess in convivial enjoyment and even in worse kinds of dissipating, is unfortunately too common. But excess is far from ceasing when even with mature manhood. With energetic persons, the desire to achieve a fortune has, at this period of life, generally succeeded to the pleasure-seeking phase of earlier years. The man, still radically unchanged, pursues business with as much avidity as ever he sought recreation. Early and late he is at his work, over-tasking his mind, and exhausting his body by undue labor. At first, indeed, he does not feel the effects of his indiscretion. Morning finds him refreshed by the repose of the night; he seems to himself as vigorous as ever; and he returns to his pursuits with the same eagerness, the same tenacity, the same folly as before. But nature at last avenges herself. By middle age he is already an old man. Or, perhaps, he suddenly breaks down, even at an earlier period, becoming a confirmed valetudinarian, the victim of dyspepsia, rheumatism, gout, nervous disorders, or possibly a complication of all four. If men would attain to the allotted term of life, they must shun excess in work, therefore, as well as in pleasure. To kill one's self by a greedy haste after riches, is as much a moral suicide as to destroy one's life by wine, by tobacco, by dining out, by late hours. It is not sufficient, however, to avoid excess merely, in order to arrive at "three score and ten." Judicious exercise must be mingled with habits of moderate living.

Personal cleanliness must be preserved by bathing, by frequent changes of linen, and by friction of the skin to induce a healthy state of that membrane. Many an excellent clergyman has shortened his days, involuntarily, by remaining in his study, when he should have been sawing wood in the cellar, walking in the fresh air, or galloping over breezy hills. Many an individual, in both sexes, has brought on disease by neglecting to keep the pores of the body properly opened. The fashionable practice of turning day into night, and night into day, is also an enemy to length of years. There is no light so beautiful as God's free sunlight. The fair, fresh complexions of most Quaker girls, and the comparatively faded ones of fashionable women, is a testimony, present before us all, in favor of regular hours, and against gas-lit ball-rooms. Plenty of light, also, even in day-time, conduces to health. The inhabitants of dark courts, like prisoners, wilt and grow wan.

A long life is rarely the lot of a passionate person. Indeed, only an iron constitution can withstand frequently recurring tempests of anger, hate, jealousy, and other evil emotions. Literally is such an individual "given over to a demon," to be racked and torn, year after year, till life escapes at last beneath the torture. To be just, moderate and true, is to be, almost certainly, a sexagenarian. Yet indolence, either of body or of mind, much less of both, is almost as fatal to a protracted existence as excess in pursuit of fortune, or in the chase of pleasure. Nature is never idle, and will not allow man to be so, without dwarfing his intellect and shortening his days. But as few Americans permit themselves to rust out, we dismiss this part of our subject without further comment.

Who will be wise, and live long? Who foolish, and die prematurely? Either course is before you, reader!

One of the most sensible sayings on the art of longevity, so far as it can be considered attainable, was that given by an Italian in his 116th year. Being asked the secret of his living so long, he replied, with that improvisation for which his countrymen are so noted:

“When hungry, of the best I eat,
And dry and warm I keep my feet;
I screen my head from sun and rain,
And let few cares perplex my brain.”

A writer observes that the last line contains the quintessence of best advice that can be given on the subject. The deadliest foe to longevity is excitement. Every man is born with a certain stock of vitality, which may be husbanded or expended rapidly as he deems best. Within certain limits, he has choice to live fast or slow, to live extensively or intensively, to draw his little amount of life over a large space, or to condense it into a little one; but when his stock at length becomes exhausted he has no more. He who lives extensively,—who avoids all stimulants, takes light exercise, never overtasks himself, indulges in no exhausting passions, feeds his mind and heart on no debilitating pleasures, lets nothing ruffle his temper, keeps his “accounts with God and man squared up,”—is sure, barring accidents, to spin out his life to the longest limit which it is possible to attain; while he who lives intensely—who lives on highly seasoned food, whether material or mental, fatigues his body or brain by hard labor, exposes himself to inflammatory diseases, seeks continual excitement, gives loose reins to his passions, frets at every trouble, and enjoys

little repose---is burning the candle at both ends, and is sure to shorten his days.

Long life comes of inheritance and good habits. We rarely see a very old person who is not descended from long lived ancestry. But this old man may have brothers and sisters who died early. For the most part, this difference comes from differing personal habits. In order to live long we must inherit the capacity, and this inheritance must be supplemented by good habits. No matter though a man's parents may have lived a hundred years, if he is a glutton he will not probably survive seventy years.

The person who promises long life is of medium size, good lungs, slow pulse, good digestion, strong teeth, firm muscles, tough skin, coarse hair, with smallish head and quiet, cheerful temper.

It is rather too late to advise a man with reference to possessing these qualities, or with reference to the parents of whom he shall be born, but it is not too late to advise any and every man with regard to his personal habits. These constitute the most important factor. Among the more important habits I name the following: One must live in the strong sunlight. Even a slight shadow means bad digestion with plants, animals and men. A plant removed from the window to the back end of the parlor, even though it be light enough to read, soon becomes pale and refuses to grow. A woman who spends her days within doors becomes pale and sickly.

Good air is important. An unventilated house produces an irritable condition of the tissues. Then instead of that unconscious, perfect working of the several parts, there is a feverish friction which prematurely exhausts the vital forces.

Temperance is vital. Temperance in food is especially important. One may drink wine, or beer, or spirits to occasional intoxication, and live to an old age, but a big eater rarely reaches seventy years. A bottle of wine will make a man stagger and talk like a fool, but it will not clog and foul his system like a thanksgiving dinner.

There is no system of diet or class of food which can justly present special claims; it is moderation, temperance. And no definite rules can be given. The food must be adapted to the individual and to his occupation. A young man is at work upon a farm mowing, digging and perspiring. Two pounds of solid food are needed. But he changes to the house-life and sitting of college. His food, as to quantity and quality, must be reduced at least fifty per cent. The food, I repeat, must be adapted to the person and his occupation. But I am again asked for some rule. The larger my experience, the more extended my observation, the less becomes my confidence in definite dietetic rules. It is safe enough to say that we eat too much; that our food is too rich, in too great a variety, and badly cooked. Beyond this I do not venture. Every person must observe his own experience, and conscientiously regard their suggestions. A man who won't do this is not likely to follow any definite rules given by another, and they are hardly worth giving.

Another important condition of longevity is regular and abundant sleep. I have never read the details of a remarkably old person's life in which "early to bed" was not a feature. One may seem to thrive for awhile on six hours sleep, but his life will not be a long one. To reach ninety years you must have at least eight hours' sleep. More than two hours should come before midnight.

A certain amount of exercise is necessary. Neither hard work, nor great muscular development are needed. Indeed it is doubtful if they are not unfavorable. Great moderation here, as in food, is most favorable to length of life. Gentle labor, in the country, as in moderate farming, is, on the whole, most favorable. It is particularly desirable that the occupation should be an agreeable one, adapted to the tastes, and that it shall satisfy the ambition.

Marriage, with its home-loves and moderate excitements, is particularly favorable to long life.

The absence of all unholy ambitions, of anger, hatred, jealousy, and the presence of an amiable, cheerful, hopeful temper contribute greatly to our stay in this world.

Ye who would have your features florid,
 Lithe limbs, bright eyes, unwrinkled forehead,
 From Age's devastation horrid,
 Adopt this plan;
 'Twill make, in climate cold or torrid,
 A hale old man.

Avoid in youth luxurious diet,
 Restrain the passions' lawless riot,
 Devoted to domestic quiet,
 Be wisely gay;
 So shall ye, spite of Age's fiat,
 Resist decay.

Seek not in Mammon's worship, pleasure;
 But find your richest, purest treasure,
 In books, friends, music, polished leisure,
 The mind, not cents
 Make the sole scale by which ye measure,
 Opulence.

This is the solace, this the science,
 Life's purest, sweetest, best appliance,
 That disappoints not man's reliance,
 Whate'er his state—
 But challenges, with calm defiance,
 Time, fortune, fate.

PHYSICAL CULTURE.

In ancient times, when "might made right," and the law of the strongest was in full force, bodily vigor and courage were of all things the most prized, and education was almost wholly physical; but as civilization progressed, the mind began to rise in public estimation, and its cultivation was recognized as a necessary part of education.

Unfortunately, however, as we have elevated mental culture, we have degraded physical; and while the ancients ignored the mind, we are in no little danger of going to the other and more fatal extreme, and ignoring the body. Especially is this danger imminent in the training of youth. Men are willing to devote many hours a week to inspecting the condition and treatment of their horses. If living in the country, they acquaint themselves with the best methods of rearing cattle, and do not disdain to study the relative value of hay and clover as articles of food, or to attend agricultural meetings and try experiments in fattening pigs and poultry. But how many persons bestow an equal amount of time, inquiry, and thought on the physical training of human beings? Silently but really the fathers of the present generation regard it as an occupation unworthy their attention: while the mothers, who have themselves been trained in every other branch rather than in the care of the human body, are often most incompetent regulators of the details necessary to produce fine and healthy human beings.

Yet the foundation of all prosperity, national and individual, the basis of all mental and moral development, the root of all personal and social happiness, consists in

physical well-being. It is not only that the most perfect health is essential to the *enjoyment* of all the other blessings of life, but it is actually necessary to the *production* of them. Health of body is essential to vigor and energy, and without these, no high attainments can be made in any branch, and no real prosperity can ensue. Never were the demands for strength of frame, firmness of muscle, and buoyancy of health, so great as at the present time. The keen competition of every variety of life consumes vitality, and produces a wear and tear of tissue unknown to the simple habits of past times; and only the soundest constitutions will eventually be able to endure the high pressure brought to bear upon them.

One of the chief means of producing a fine animal organism lies in the regulation of the quantity and quality of the food. The diet which will give the greatest amount of nutriment, while demanding the least labor from the digestive organs, will best repair the rapid wastes caused by the growth of the body. Energy of character is far more dependent on the nutritive quality of the food than is generally realized. A variety of diet should also be observed; the appetite demands it, and all experience shows its benefit.

If nature is reliable in regard to our food, she is equally so in regard to our clothing. All fashions that neglect the sensations of heat and cold, should be at once condemned. Exposure of the arms and neck in childhood has happily been abandoned by well-informed persons, and it is no longer thought genteel for ladies to walk on damp or cold ground in thin slippers. Yet there is still a tendency to insufficient clothing in that sex which needs the most protection. Raiment, by preserv-

ing the natural heat of the body, diminishes the waste of vital force that is always taking place in the body, and when, therefore, cold is endured, it must be at the expense of some proportion of vitality. As the requirements of different persons vary, the only rule that can be laid down as invariable, is always to use sufficient clothing to prevent a permanent sensation of cold.

The fact now well known by every physiologist cannot be too deeply impressed on every one, that if the growth of any part of the system be unduly promoted, the rest must be retarded. Only a limited amount of vital energy exists to perform the various work demanded, and if exhausted in one direction, it is of course abstracted from the others. Besides this, success in mental culture depends so greatly on the bodily development, that the supposed gain to be obtained by centering all the energy on that one part, will prove to be an actual loss, and in proportion to its too rapid advance, will usually be found its premature arrest.

A long train of sins, from peevishness upward, may be laid at the door of a feeble and sickly state of health; and advancing knowledge will doubtless increase the catalogue. But it is not until the public conscience is educated to regard the cultivation of the finest physical health *a moral duty*, and the neglect of any of its laws *a positive sin*, that we shall attain any radical improvement in this most important subject. As soon as we grow sufficiently intelligent to appreciate the full consequences entailed on our own and future generations by disregarding the laws of the body, such disobedience will take its true rank, not as a grievance to be lamented, but as a sin to be reprehended.

Every organ and every faculty, physical and mental,

must be exercised to be developed, or to retain its normal condition, and within certain limits, the strength and perfection of those organs and faculties are in proportion to their exercise or material use. The principle is particularly manifested in the development of muscles. The right arm, especially that of the blacksmith, or other artisans who use it almost exclusively, is manifestly larger and stronger than the left, and the extent to which this development of power and control of the muscles can be carried is truly astonishing. Muscles are only the red flesh of animals which make our tender steak, and yet when endowed with vitality, a little bundle of these delicate fibres will sustain and move the weight of tons. A man of ordinary size has brought up his muscles to the power of sustaining a weight of nearly three thousand pounds; and all this weight, besides the weight of his own body, must come upon a few bundles of red flesh in the back and also in the legs.

How astonishing also is the control of the will over the muscles, as shown in the gymnastic feats which a long course of training enables men to perform! A man will lie on his back, lifting with his toes a long ladder into the air, on the top of which is another ladder, and on the top of that his own son, cutting up his pranks as fearlessly as if standing on the ground. Another man will trundle a wheelbarrow over Niagara River, on a single rope, knowing that if he should fall death is certain.

On the other hand, we see men, otherwise in good health, who have so neglected muscular exercise that they are scarcely able to carry the weight of their own bodies; indeed, many a silly girl, in order to bring herself to her own ridiculous standard of beauty, has so weakened the muscles of the chest and back as to be

unable to sustain her head and shoulders without artificial support.

And I once saw a woman, who in merely in gratifying a perverse will, disabled herself from walking or standing for more than four years. When her husband was about going to sea for a year, she demanded some extravagant purchase, with the threat that unless it was made she would go to bed and stay there till he returned; and this threat she carried out literally. When the husband returned, she could no more stand or walk than a rag baby, and her husband, naturally, abandoned her forever. Having no means of support, she tried to recover her lost powers; but the pain of trying to use the neglected muscles and joints was so great that she abandoned the effort, and remained in that helpless condition for four years, when she was obliged to be carried to the almshouse, of which I then had the medical care. Being there under my control, I set about restoring the wasted muscles by walking her daily, between two strong women, regardless of her screams and imprecations; and very slowly the muscles began to grow and assume their power, and in four or five months she was discharged, able to walk and get her own living.

These illustrations show more clearly than a long dissertation on gymnastics, the necessity for muscular exercise, and the principles upon which to regulate it. Every motion exercises the muscles adapted to make that motion. If, therefore, we make every motion we are capable of making, we exercise every muscle. To do this we need no complicated machinery. Every one has in his own room the means of exercising every muscle of his body. By standing erect, unencumbered with any clothing which shall embarrass the action, and making

the motions of rapid walking without advancing, at the same time extending the arms, expanding the chest, and lifting up and letting down the shoulder-blades, we bring into action nearly all the voluntary muscles of the body; and then, to give tension and strength to the muscles, we may lift some article of furniture according to the strength, as the end of the sofa, bureau, or the foot or head of the bed, and thus get every practical benefit that can be had from the most complicated gymnastic apparatus. If the exercise has been neglected till the chest has become contracted, and the lungs compressed, we may need the assistance of some pulleys on the wall, attached to the weights, or springs, so that by placing the back to them, and taking hold and pulling forward with the hands over the shoulders, the chest is expanded, and for a time, till we have acquired sufficient tension and strength of muscle, we may derive advantage from raising, in a proper position, graduated weights; but having acquired the necessary tension and power for ordinary purposes of life and health, nothing is gained by bringing the muscles into fuller power of activity.

All the instructions which any man of common sense needs, can be given in five minutes; indeed, they are all included in the hints given above. An intelligent mother, therefore, in her own house can develop the form of her daughter much better than a professional gymnast; and if mothers when their daughters are beginning to develop into womanhood, and to feel the restraints of society, would just regard these hints, and insist, as a matter of duty, that they should exercise every muscle of the body every day, and conform in other respects to the hygienic laws elsewhere described, Nature will do for them all else that is necessary to develop perfect

forms and perfect health. If this is neglected, it is folly to expect that a few months of tuition at a gymnasium will do much for them. At most it can only prepare the way for domestic exercise in such as have waked up to a sense of duty when the health of their daughters has already suffered from neglect, and then can be of use only as exercise is afterwards continued.

What we want is a clear conception of the object to be gained by exercise—"a sound mind in a sound body,"—and this desirable condition can only be attained by the harmonious play together, every day, of our mental and physical faculties. It cannot be attained by an effort to ascertain how much we can lift or how far we can jump. On the contrary, such efforts tend to destroy that harmony, and to induce degeneracy and brutality of mind; and this for the obvious reason that it develops the faculties which constitute the highest glory of the brute at the expense of those which constitute the highest glory of the man. He who has no higher aspiration than to be the strongest or most athletic man, must be humbled by the thought that many an insect, which is esteemed of so little value as to be crushed under foot without compunction or thought, can lift, in proportion to its weight, a hundred times as much, and jump a hundred times as far.

PHYSICAL EDUCATION.

Physical Education consists in the improvement of the corporeal organs and functions, so as to promote physical vigor, health, and beauty, including such attention to sleep, diet, clothing, exercise, and ventilation, as shall

render the person a pleasant and elegant dwelling-place for the soul, and a good medium for its communication with the external world.

This branch of education is the peculiar mission of the parent. Still, every teacher is aware that mental vigor and ability depend very much upon physical comfort and well-being, and that, if she would successfully promote the mental and moral culture of her pupils, she must first establish this culture on the firm basis of sound health. Since imbecility, irritability, and depression are the miserable offspring of disease, every conscientious teacher will regard the promotion of her pupils' health as no insignificant part of her mission, and consequently will keep her school-room of the right temperature and well ventilated. Nor will she let them contract their chests by folding their arms, or bending over their desks, but require them to sit erect and stand upright, and thus secure a free and healthy respiration. She will see, too, that opportunity for exercise is afforded them, as often as their age and constitution demand, and that the brain is not over-tasked with study.

There is a great lack of attention in our boarding schools and seminaries to a proper training of the physical powers. The mind is developed at the expense of the body, and the consequence too often is, disappointed hopes and an early grave—frail buds of promise that perish in the opening and never come to the hoped for maturity. But it is not in the schools alone that a neglect of physical education is attended with disastrous consequences; for persons engaged in sedentary employments too often suffer from the same cause.

“One of the principal causes, if not *the* cause, of the attenuated and pallid appearance of Americans is doubt-

less the neglect, or rather the violation, the habitual violation, of the rules laid down by nature for muscular development. The class of men in this country whose occupations are such as almost necessarily lead to the formation of sedentary habits, is very large; larger, perhaps, in proportion, than that of any other commercial nation. And this will account in a measure for the fact that various complaints, generally the concomitants of insufficient physical exercise, are more prevalent here than elsewhere. Our young men being thus confined to the limits of a counting-room, at a time of life when the open air and constant motion of the body are indispensable, it is not surprising that they should be in manhood so sadly deficient in muscular vigor, and exhibit so little of athletic developments that are looked for in the sterner sex. With many such their lot is their fate, or is imposed as a necessity from which there is no escape, and for these there is some excuse for the loss of health and life. But what shall be said of those who make no effort to ameliorate their condition, or of that still more culpable class who from mere indolence suffer their bodies to *waste* away, to sink into premature old age, actually paying a premium for crooked spines, humped backs, round shoulders, attenuated limbs, and drooping heads?

“In Germany the old men thought they saw the youth degenerating both physically and socially, and, after severe study and mature reflection, recommended, by eloquent appeals through the public prints, the adoption of vocal and gymnastic exercises as characteristic of the German race. In a short time gymnastic and vocal societies were organized throughout the whole extent of Germany, which have resulted in a highly favorable revolution in the physical condition of the people.”

Labor and study should succeed each other.

President Felton, in discussing physical training, said that among the Greeks, a people so wise in all which concerns the physical man, there were two widely different systems of training—one adapted to the athletic, the other to gentlemen and men of learning. The former resulted in an immense development of muscle and crude strength, while the latter resulted in a wonderful grace, agility, and beauty. The former produced the great wrestlers, but was deemed unfavorable to intellectual genius, while the latter was resorted to as the surest means of securing that delicate susceptibility and elastic vigor which characterized the Greek poet and orator. A prodigious abnormal development of muscle—the result of long-continued, special, intense training—destroys the balance between mind and body, and while it produces a splendid animal, leaves the brain with less than its share of power. Plato says, “Excess of bodily exercise may render us wild and unmanageable; but excess of arts, science, and music makes us feeble and effeminate. Only the right combination makes us wise and manly.”

PHYSICAL EXERCISE.

“A sound mind in a sound body” is the true condition of excellence and happiness. We are so formed that when one member suffers, all the other members suffer with it. An intimate sympathy exists throughout the human system, so that when one organ is diseased or unable to perform its work, others share the extra labor. “We are fearfully and wonderfully made;” and, no doubt, it was the Creator’s design that every portion of

this wonderful structure should be temperately active. Since the fall of man and the going forth of the sentence, "In the sweat of thy face shalt thou eat bread, till thou return unto the ground," labor is man's portion, and in it he finds greatest health and happiness.

Exercise is the divine law for man in his fallen condition—a real blessing to him. This is true of man as a whole, and consequently of every part of him. Whenever the exercise of any portion is neglected, the result is weakness, and perhaps disease of that part, while some other portion may be overworked and become diseased as a consequence. Especially is this principle proved true in mental and physical labor. There can be no doubt that those whose pursuits are sedentary suffer much from lack of physical exercise; while those who labor as farmers and mechanics, whose labor is mainly muscular, would be benefited could the mind be more exercised.

In modern civilization, one's avocation is all absorbing. The professional man gives his whole time to books and brain work. The mind may become very active, the brain greatly developed, and shine for a time with brilliancy; but in the end it is doubtful if there is not a loss sustained, and if more could not be accomplished with judicious physical labor interspersed. How many of our greatest men are falling by apoplexy, paralysis, and nervous diseases. The physical frame becomes weakened through lack of proper exercise, impurities are not thrown off, and therefore remains to poison the blood; while the intensely active brain calls more and more for the proper nourishment to feed it, the blood concentrating upon that part which is most active, the nerves are overstrained, and at last break under the pressure. Paral-

ysis or apoplexy result. It cannot be doubted that in many cases far more would be accomplished by brain workers if they would take a portion of the time they devote to study and spend it in some kind of physical labor. They would last longer, and be in better condition for work when they did work. These principles are recognized by all well-informed physiologists. And to help out the difficulty amusements are recommended that will require some muscular exercise, such as rolling at ten-pins and playing ball. But it may well be doubted if there is not a better way. Amusements, which are of no practical benefit to any one of themselves only for exercise of the one engaged in them, cannot be as satisfactory to the man of sense and conscience as exercise in which some one is practically benefitted. In this way the moral powers might be engaged and one's self-respect be better maintained than to be occupied with that which was frivolous and useless. Many great minds have realized the importance of this principle and acted upon it.

Horace Greeley, in his description of his habits of life, gives an interesting account of the happiness he experienced and the benefit he derived, from taking his axe and trimming the trees of his wood lot, and exercising his muscles with this useful implement. It is said also of the celebrated Archbishop Whately, that he was often seen axe in hand, working off nervousness and indigestion. Instances of this kind might be multiplied where men of common sense have acted upon this principle and with benefit to themselves. The principle is generally recognized, that health and strength of mind depends much upon health and strength of body. These cannot be maintained without proper exercise. These

being established principles, would it not be well to act in reference to them?

One great distinguishing mark between animals and plants is voluntary motion; all animal organisms are created for motion; not necessarily locomotion, but motion of some kind. All young animals are filled with an instinctive love of motion, by which their fluids are actively circulated, and their growing bodies fully developed; the young human being is the only animal organism in which this natural tendency is repressed. The effects of muscular action are seen in the development of various parts of the body; the arm of the blacksmith, the legs of the dancer, the neck of the porter, are familiar examples of growth of particular regions of the body by exercise. The muscles not only move the limbs, but they keep the body upright, balancing it evenly on the extremities; hence we may understand how unnatural positions,—as standing on one leg, sitting upon one foot, leaning upon one arm, bending the chest forward or sideways,—may cause deformity about the hips, shoulders, spine, and limbs, especially if practiced during youth, when the bones and ligaments are yielding. Many such deformities lasting for life, owe their origin to the school room.

The late Dr. John C. Warren writes: "Of the well educated females within my sphere of experience, at least one-half are affected with some degree of distortion of the spine." An eminent French writer says: "It is so common that, out of twenty young girls who have attained the age of fifteen years, there are not two who do not present very manifest traces of it." Any one who will walk where young ladies congregate, will soon be convinced of the truth of the above statements, by

simply trying to find one of the fair pedestrians who has not one shoulder higher than the other. The remedy lies in impressing teachers, and especially mothers, with the importance of the rudiments of physiology and hygiene; the teaching and the practice belong essentially to the economy of the household, not of the school room.

The spine is not a mere contrivance to keep the body erect, like a kind of internal walking stick, which will answer the purpose just as well if it be a little crooked; the spine encloses the central spinal marrow, from which comes off most of the nerves of sensation and motion, and of those essential to the performance of respiration, circulation, and digestion; all these functions will be disturbed in proportion to the degree of pressure arising from its curvature; the lungs and heart are to the same extent displaced, constituting additional sources of disease.

A lady once consulted the eccentric John Abernethy respecting a nervous disorder, the particulars of which appeared to him so whimsical, that he interrupted the tedious details by holding out his hand for the fee. A one pound note and a shilling were placed in it; he returned the shilling to the lady, with the exclamation, "There, ma'am! go and buy a skipping rope—that is all you want." And many a young woman in America may profit by his advice. Sydenham, an English physician, had such confidence in exercise on horseback, that, in one of his medical works, he says: "If any man was possessed of a remedy that would do equal service to the human constitution with riding gently on horseback, twice a day, he would be in possession of the philosopher's stone." There can be no doubt that many cases of obscure nervous diseases, dyspepsia, gout, and neural-

gia, require for their relief nothing more than a regulated diet and active exercise; and that the reply of Mr. Abernethy to an indolent and luxurious citizen who asked what was the cure for gout, contains the simple and whole truth for the cure of diseases of indulgence and laziness, viz: "Live on sixpence a day, sir, and earn it."

By too much sitting still the body becomes unhealthy, and soon the mind. This is nature's law. She will never see her children wronged. If the mind, which rules the body, ever forgets itself so far as to trample upon its slave, the slave is never generous enough to forgive the injury, but will rise and smite the oppressor. Thus has many a monarch mind been dethroned.

Exercise in the open air is as indispensable as proper food, and no person can long remain healthy in body or comfortable in mind without it. There are hundreds of women at the present day who pass away whole days and weeks in the house, and sit or lie in bed nearly the whole time. The consequence is they are always sickly, low-spirited, irritable, wearied and often wearisome. They become dyspeptic, sallow, and weak; their hands and feet are cold, and their heads are continually aching, dizzy or confused. And what else can they expect? Those who understand the simplest principle of physiology will see the reason for this, and if these principles were more generally understood there would be less of this irrational conduct seen. The exercise of females, however, should be less violent than that of men, and never carried to the extent of producing much fatigue. It should be varied as much as possible, and adapted to the wishes and wants of the individual, and should be pleasant and agreeable. Tending the flower gardens, seeking

plants for the study of botany, or rambling in the fields or by the sea shore, and riding on horseback, particularly in cheerful company, are excellent. So is dancing, but not in a close hot room, nor late at night, nor when the body is bound up in a tight dress, or the feet pinched in tight shoes. Under these circumstances the mere exercise will not counterbalance the other evils. A celebrated French physician—M. Foucha,—used to command his nervous female patients—to *scrub the floors, wash the clothes*,—and perform other menial labor, and such was his influence that ladies of the highest ranks would be seen on their knees, and at the wash-tub, working like their servants and eating the same food. Though this treatment was unnecessarily harsh, yet its good effects were so palpable that none refused to follow it. Oh, for a Foucha at the present day to relieve the horrible condition of many of our wives and daughters.

Three principal points in the manner of taking exercise are necessary to be attended to: 1. The kind of exercise. 2. The proper time for exercise. 3. The duration of it.

The kinds of exercise may be divided into active and passive. Among the first, which admit of being considerably diversified, may be enumerated walking, running, leaping, swimming, riding, fencing, the military exercise, different sorts of athletic games, &c. Among the latter, or passive kinds of exercise, may be comprised riding in a carriage, sailing, friction, swinging, &c. The first, or active exercises, are more beneficial to youth, to the middle-aged, to the robust in general, and particularly to the corpulent and the plethoric. The second, or passive kinds of exercise, on the contrary, are better calculated for infants; old, dry, and emaciated persons of a delicate

and debilitated constitution; and particularly to the asthmatic and consumptive.

The time at which exercise is most proper depends on such a variety of concurrent circumstances, that it does not admit of being regulated by any general rules, and must, therefore, be collected from the observations made on the effects of air, food, drink, &c. That exercise is to be preferred which, with a view to brace and strengthen the body, we are most accustomed to, as any unusual one may be attended with a contrary effect. Exercise should be begun and finished gradually, never abruptly. Exercise in the open air has many advantages over that used within doors.

To continue exercise until a profuse perspiration or a great degree of weariness takes place, is far from being wholesome. In the forenoon, when the stomach is not too much distended, muscular motion is both agreeable and healthful; it strengthens digestion, and heats the body less than with a full stomach; and a good appetite after it, is a proof that it has not been carried to excess. But, at the same time, it should be understood that it is not advisable to take violent exercise immediately before a meal, as digestion might thereby be retarded.

Neither should we sit down to a substantial dinner or supper immediately on returning from a fatiguing walk, at a time when the blood is heated, and the body in a state of perspiration from previous exertion, as the worst consequences may arise, especially where cooling dishes, salad, or a glass of cold drink, is begun with.

Exercise immediately after meals is always hurtful, from its impeding digestion, by propelling those fluids too much towards the surface of the body, which are designed for the solution of the food in the stomach.

As a rule, food which is best enjoyed is best digested. Just so exercise which is most agreeable is usually the most beneficial. In selecting methods of exercise, every individual should be guided by his own individual tastes. It is better to change frequently from one exercise to another. It is well even to consult our whims and our varying moods. Above all things, we should strive to prevent our exercise from becoming a dry, hard, mechanical routine. The heart should go with the muscles.

Exercise can kill as well as cure. To be taken advantageously, it should be done with judgment. Sometimes a particular part of the body needs exercise, but the whole body is too weak to give it; in such case, only the part needing it should have it. But there is one rule which is applicable to all: never go against the instincts. Many persons have hurried themselves into the grave by endeavoring "to keep up" when they ought to be in bed; and they do "keep up" too, for so long a time that when they do take to their beds, their strength is so completely exhausted, that the system has no power to rise, and they fall into a typhoid condition, and all is lost. When anything serious is the matter with domestic animals, they court quietude and perfect rest. Sometimes we feel indisposed to exercise from sheer laziness; in all loose conditions of the bowels, and debility, an instinctive desire to sit down and stay there is universal; in most of such cases quietude is cure. But there is one safe rule for all, under all circumstances; if every step you take is with an effort do not take another; go to bed; if you feel the better for a walk, then walk on; but stop short of great fatigue.

MENTAL AND PHYSICAL EXERCISE.

We have still a few words more to say in regard to physical exercise, bearing upon what it may be well to remember: If the use of any set of muscles is neglected they rapidly waste, and even disappear. Persons believing that they suffer from spinal disease have frequently remained without any motion for months. The result has been utterly wasted muscles or stiffened joints, from which they have only recovered by removing the hallucination from their minds, and forcing themselves to rely upon some sort of active exercise.

The blind animals found in the Mammoth Cave of Kentucky are adduced as an interesting example of the removal of an organ by long disuse, perhaps, in successive generations; and it would be a matter of curiosity to ascertain whether eyes would be restored to them if for two or three generations some of them were transferred to the light. This speculation is indulged in by an eminent Irish physician.

Of all tissues the muscular is the most susceptible of increase by augmented exercise, as is illustrated in the case of the blacksmith's arm or the ballet-dancer's leg. It is for this reason that excessive exercise sometimes proves injurious by enlarging the heart.

Too great or too constant a use of one set of muscles is likely to attract disease to them.

Concentration of bodily or mental efforts on one object for a length of time is always injurious, as extreme exhaustion of the strained organs will follow; and the ill effects will afterwards react upon the others. This shows that the only mode of attaining anything like perfect exercise is to engage all the mental faculties and

groups of muscles in performing it. The proper kind and amount of bodily exercise are so variable with the circumstances of each, that general rules are with difficulty laid down; but the following seem judicious:

FIRST. During ordinary health some part of each day should be spent out of doors, even in weather apparently unsuitable, for clothing supplies a means of obviating all ill effects.

SECOND. It should be as active and general as possible, and carried to the point of slight fatigue.

THIRD. It should be taken at the best time of the day, which is early, but always with the precaution of taking beforehand some light food; a substantial meal can be the better eaten afterwards. If a hearty breakfast be taken early, the exercise may be commenced an hour or so afterwards.

Dumoulin, the great physician, surrounded at his last moments by several of the most distinguished doctors in Paris, thus addressed them: "Gentlemen, do not regret me; I leave behind me three of the greatest physicians." On being pressed to name them, he added: "Water, Exercise, and Diet," to the discomfiture of each of those who had thought that his own name would have been among the number.

As regards the methods of exercise, it is believed that riding on horseback is superior to all others. Frederick the Great is reported to have said: "When I consider the physical structure of man, it appears to me that Nature had formed us rather to be postilions than sedentary men of letters." The greater variety of scenery it brings before the mind, the agreeable way in which the attention is fixed when guiding the movements of the horse,

and the rapidity of motion it confers without fatigue, make it most desirable.

It has been thus put by a clever writer :

“Saddle leather is in some respects even preferable to sole leather. The principal objection to it is of a financial character. But you may be sure Bacon and Sydenham did not recommend it for nothing. The liver, a ponderous organ, weighing some three or four pounds, goes up and down like the dash of a churn, in the midst of the other vital arrangements, at every step of a trotting horse. The brains also are shaken up like coppers in a money box. Riding is good for those who are born with a silver-mounted bridle in their hand, and can ride as much and as often as they like, without thinking all the time they hear that steady grinding sound as the horse’s jaws triturate with calm lateral movement, of the bank-bills and promises to pay, upon which it is notorious that the profligate animal in question feeds day and night.”

Of boat exercise he says:

“You can row easily and gently all day, and you can row yourself blind and black in the face in ten minutes, just as you like. It has been long agreed that there is no way in which a man can accomplish so much labor with his muscles as in rowing. It is in the boat, then, that man finds the largest extension of this volitional and muscular existence; and yet he may tax most of them so slightly, in that most delicious of exercises, that he shall mentally write his sermon or his poem, or recall the remarks he has made in company, putting them in a form for the public, as well as in his easy-chair.”

Dr. Combe remarks:

“Dancing is a cheerful and useful exercise, but has

the disadvantage of being used within doors, in confined air, and often in dusty rooms, and at most unseasonable hours."

Gymnastic exercises and games of agility and strength are important to preserve the vigor and manly development of youth. The recent extension of the national game of base-ball in this country is of value, as the emulation it gives rise to supplies that mental stimulus which it is argued should be associated with every kind of bodily exercise.

We may learn much hygiene from the rules observed in training by the average pugilist or pedestrian, whose motto is, "Work and Diet." He rises early after sleeping on a hard bed, takes a small quantity of food, for example, an egg, and then a moderate walk for an hour, when he bathes and breakfasts. This meal consists mainly of underdone meat with perhaps tea, butter, and sugar, much milk being excluded. Half an hour after breakfast he begins his hard walk of ten or twelve miles, after which he is rubbed down, and takes a cold bath. His dinner consists of bread, meat, and a small quantity of vegetables, and the day is wound up with a short walk just before retiring to rest. This brings him into a perfect state of health, which would render him the most long-lived of our kind, save for the course of dissipation which usually follows the contest.

It must be remembered that even in tropical climates bodily exercise is necessary, which has been proved in India, where there is a much greater prevalence of disease among the private soldiers in the English army than among the officers, who have facilities for riding especially, which the others do not enjoy.

Our object has been to show the advantages, nay, the

necessity, of a proper and well regulated amount of exercise of the body, as well as of a healthy employment of the mind. By disuse both will fall into decay, as inaction is unnatural; and it must be remembered that both body and mind are intimately connected in their healthful relations, and the neglect of either will create disorder in the whole system.

Nothing in the habits of Wordsworth—that model of excellent habits—can be better as an example to men of letters than his love of pedestrian excursions. Wherever he happened to be, he explored the whole neighborhood on foot, looking into every nook and cranny of it; and not merely the immediate neighborhood, but extended tracts of country; and in this way he met with much of his best material.

Scott was both a pedestrian and an equestrian traveler, having often, as he tells us, walked thirty miles or ridden a hundred in those rich and beautiful districts which afterwards proved to him such a mine of literary wealth.

Goethe took a wild delight in all sorts of physical exercise—swimming in the Ilm by moonlight, skating with the merry little Weimar court on the Schwansee, riding about the country on horseback, and becoming at times quite outrageous in the rich exuberance of his energy.

Alexander Humboldt was delicate in his youth, but the longing for great enterprises made him dread the hindrances of physical insufficiency, so he accustomed his body to exercise and fatigue, and prepared himself for those wonderful explorations which opened his great career.

Here are intellectual lives which were forwarded in their special aims by habits of physical exercise; and, in

an earlier age, have we not also the example of the greatest intellect of a great epoch, the astonishing Leonardo da Vinci, who took such a delight in horsemanship that although, as Vasari tells us, poverty visited him often, he never could sell his horses or dismiss his grooms? The physical and intellectual lives are not incompatible. I may go farther, and affirm that the physical activity of men eminent in literature has added abundance to their material and energy to their style; that the activity of scientific men has led them to innumerable discoveries; and that even the more sensitive and contemplative study of the fine arts has been carried to a higher perfection by artists who painted action in which they had their part, or natural beauty which they had traveled far to see. Even philosophy itself owes much to mere physical courage and endurance. How much that is noblest in ancient thinking may be due to the hardy health of Socrates!

Such is the intimate relation between the body and mind that it is impossible to do any good to either unless the actions of both are kept in harmony. This truth is well demonstrated by the utter uselessness of all physical exercise for health's sake, unless accompanied by a wholesome mental activity. Let any one, while depressed in mind, test his muscular power, and he will soon find how little able and disposed he is to use it. On the other hand, if he exerts his physical strength when under the animating influence of pleasurable emotions, he is scarcely conscious of the effort. If physical exercise is persisted in with the indisposition and incapacity for it that come from mental depression, the result is an excessive prostration which is of course injurious to the health of the body. On the contrary, the exertion of

the muscular force, stimulated and supported by a cheerful mind, can be continued almost indefinitely, with the good effect of giving increased vigor to the whole human system.

All plans of exercise should be based upon a regard to the harmonious action of mind and body. The solitary "constitutional" walk, as it is called, taken for health's sake, is of no benefit, for it can be seldom varied, and does not supply diversion to the mind, which continues to fret itself and weary the body. Horseback exercise is much superior, for the reason that in the management of the beast there is necessarily a constant call upon the attention which keeps the mental faculties occupied, and thus relieves them of all depressing and exhausting influences.

Those sports requiring physical effort and the open air are excellent for health, as they occupy the mind pleasantly at the same time that they exercise the body. It is surprising how much work can be got out of the muscles when stimulated to action by agreeable emotion. A child will run, and climb, and tumble, and shout, and indulge in boisterous efforts of all kinds the whole day, apparently without any fatigue, while engaged in play with his fellows; but let him take the shortest and most composed walk with an elder, and he will hardly step a dozen paces before he begins to lag back in weariness.

The great point to be considered in any plans of exercise for health's sake, is the intimate alliance between body and mind, and the necessity of providing simultaneously for the occupation of both. It matters little how the muscles are put into action; but that form of physical exercise is the best which is accompanied by the most agreeable mental emotions. Pleasant company will

give a refreshing and wholesome effect to a long walk, which if taken alone would only weary and weaken.

“If we would make a well man sick,” says Theodore Weld in his Report on Manual Labor Institutions, “or kill a sick man by piecemeal, we need only to require him to practice some formal muscular movement, and to keep up his spirits by such a sing-song as this:

‘I’m doing this for my health,
I’m doing this for my health,
For my health, for my health,
I’m doing this for my health.’”

WALKING AND ITS USES.

Exercise is absolutely indispensable to the physical well-being of man, and walking is one of the most useful of the various modes of exercise. As a people we ride too much and walk too little. If we are in the country, and have a mile or two to go, we wait—perhaps long enough to walk the entire distance—for a horse to be got ready, and then sit lazily in our seats while this noble animal rapidly carries us to our destination. If we are in the city, and have a few blocks to go, we get into an omnibus or a horse car and sit our journey out, just as though we were not created with legs the same as horses are. The nation’s legs are rapidly diminishing in size for the want of exercise, hence the demand for false calves and for easier modes of locomotion is on the increase; so, also, is dyspepsia, liver complaint, general debility, and other physical derangements, which result, in great part at least, from a lack of muscular action.

The special advantages of walking, as an exercise, are

many. Perhaps the most important is that it takes us out of doors, and keeps us there in the pure air and the bright sunshine. The exercise, which is gentle and prolonged, increases not only the frequency but the fullness of respiration, thus bringing a much larger quantity of oxygen into the lungs and through them, to the blood, thereby giving the finishing touch to the process of digestion and vitalizing "the red current of life." Another advantage to respiration is this: when a person is sitting or standing still, the exhaled air from the lungs which is unfit to be breathed again, fills the space about the face, and a portion of it is taken into the lungs at the next breath; especially is this the case if the head is bent forward; but when a person is walking and expels the air from his lungs, his head is carried past the expired air before he draws in another breath, and thus he gets a supply of pure air, with its full proportion of oxygen, at every inspiration, and thus is the vigor and vivacity which results from exercise in the open air partially accounted for. Walking is very beneficial to the digestive organs, by the gentle yet constant motion which it imparts to them, and which is essential to their long-continued, healthful action. It brings into action and properly develops more muscles than any other one mode of exercise. It tends to equalize the circulation of the blood. Pedestrians, rope-dancers, and those who exercise their legs a great deal are not troubled with that almost universal complaint—cold feet. The simple reason is that exercise calls the blood to the parts exercised, and the blood feeds and warms.

One great objection to walking is that it takes so much time. True, it takes some time; more, as a general thing, than it does to ride; but so does the accomplish-

ment of any thing desirable; and is not good health desirable? In the end, however, it results in the saving of time, by preserving the health and increasing the vigor of all the physical and mental functions. In no way is there so much time wasted, to say nothing of vitality, as in being sick, and yet people are unwilling to give a little time to keeping well.

Walking is, beyond dispute, the best possible exercise, as it brings into play, in rapid succession, all the sets of muscles of the trunk and limbs. Says Jefferson: "The Europeans value themselves on having subdued the horse to the use of man; but I doubt whether we have not lost more than we have gained by the use of this animal. No one thing has occasioned so much degeneracy of the human body. An Indian goes on foot nearly as far in a day, for a long journey, as an enfeebled white does on his horse, and he will tire the best horses."

Feet were intended for use, and yet immense numbers of sensible men seem to think walking on them is a hardship. Those who ride in carriages habitually have degenerated limbs. The muscles become attenuated in consequence of not being constantly active. Rope-dancers, horseback-riders, and indeed all who are using their legs as they were designed to be, have them finely developed. The more they are exercised the stronger and more symmetrical they become. But another great gain results from walking more than one rides. It brings into harmonious play the whole muscular cordage of the body. A healthy condition of all the internal organs follows, and the secretions are admirably conducted by pedal exercises. It is a pleasant condition of eminent civilization to ride any way, but particularly luxurious to bound off in one's own soft-cushioned carriage; but

there is a penalty positively following too much comfort of that kind. Digestion becomes impaired, the legs diminish in size; and the individual who rides when he can, and rarely walks, is soon weary when the attempt is made. Longevity is the compensation for free outdoor walking, without much reference to weather, when business or duty requires it. We were created for use, not altogether for ornament.

Walking is good, not stepping from shop to shop, or from neighbor to neighbor; but stretching out into the country to the freshest fields, and highest ridges, and quietest lanes. However sullen the imagination may have been among its griefs at home, here it cheers up and smiles. However listless the limbs may have been when sustaining a too heavy heart, here they are braced, and the lagging gait becomes buoyant again. However perverse the memory may have been in presenting all that was agonizing, and insisting only on what cannot be retrieved, here it is at first disregarded and then it sleeps; and the sleep of the memory is the day in Paradise to the unhappy. The mere breathing of the cool wind on the face in the commonest highway is rest and comfort, which must be felt at such times to be believed.

How few men or women of our country seem to find pleasure in walking! Look at our cars and omnibuses daily filled with those who prefer riding instead. Among those able to choose their mode of conveyance, pedestrians are the exception rather than the rule. Gentlemen who have the good sense to walk often express regret that ladies on every occasion resort to the carriage instead of employing their muscles in this healthful, graceful exercise. It is refreshing to meet, now and then, with those who have, by experience, proved its benefits and

its pleasures. Said a doctor of divinity the other day—one often seen upon our street in manly vigor—"I have ever been a walker. During my student life more than once I walked from Newton to Providence." A slender-refined lady, after serving the cause of our country and humanity as nurse of our soldiers, was sent to Europe to find health, and there learned—to walk. In Scotland and Germany, twenty and even thirty miles of that animating, life-giving exercise was no common exploit. Said she: "Now I think nothing of ten miles." May the example of this noble little woman, moving about upon her mission of healing—she will yet make herself known among us—be considered worthy of imitation.

Anaximenes taught that air is mind. Some one else says that is the hidden food of life. Plutarch seems to incline to Anaximenes' opinions, remarking that perhaps the reason why there is a sympathy of feeling on various subjects arises from breathing the same air. Air is an exhalation of all the minerals of the globe; the most elaborately finished of all the works of the Creator. All classes of men affirm this. Sidney Smith says to public speakers that if they would walk twelve miles before speaking, they would never break down. In English Universities, boat races, horseback rides, and ten mile walks are a part of the educational means for physical development. Plato says a walk in the open air will almost cure a guilty conscience.

Walking, and plenty of it, is the best specific for high health. There is a proverb, "Never walk if you can ride;" but it would be a better proverb still, "Never ride if you can walk."

A long tramp through the mountains is better and more exhilarating exercise than base-ball playing or boat-

rowing, and the *American Educational Monthly* commends a Swiss custom to the young people of our country: "They have a delightful custom in the Swiss schools for boys, which might be adopted with great advantage to all concerned in this country. During the weeks of the summer vacation, it is the habit of the teachers to make with their pupils what are called *voyages en zig zag*; that is, pedestrian tours among the sublime mountains and charming valleys of that 'land of beauty and grandeur.'" Squads of little fellows in their blouses, with their tough boots drawn on, and knapsacks on their backs, may be met, during the season, on all the highways, and sometimes in the remotest passes of the Alps, as chirrupy as the birds on the boughs, and as light and bounding as the chamois that leap from crag to crag. They are perfect pictures of health and happiness, and the treasures of fine sights that they lay up in their memories during these perambulations it would be difficult to describe.

We know of more than one urchin who has thus scaled the summits of the Faulhorn, looked down from the precipices of the Bevent, walked over the frozen oceans of the glaciers, and gazed in rapture upon the sunsets on the Jungfrau or Mont Blanc. Their tramps are made without danger and without much expense, and the life is one of incessant enjoyment and rapture. But why could not the same thing be done here, where we have the Catskills, Adirondacks and the White Mountains, the exquisite lakes of the North, the River St. Lawrence with its rapids, Niagara, and the lovely scenery of Western Virginia, which we are told, is scarcely surpassed on the continent? Over the long intervening stretches the railroad will bridge the distance, while the inns are not

expensive, and the country fare wholesome and nutritious.

Walking briskly, with an exciting object or pleasurable interest ahead, is the most healthful of all forms of exercise except that of encouragingly remunerative, steady labor in the open air; and yet multitudes in the city, whose health urgently requires exercise, seldom walk when they can ride, if the distance is a mile or more. It is worse in the country, especially in the well-to-do; a horse or carriage must be brought to the door even if less distance has to be passed. Under the conditions first named, walking is a bliss; it gives animation to the mind, it vivifies the circulation, it paints the cheek and sparkles the eye, and wakes up the whole being, physical, mental and moral.

We know a family of children in this city who, from the age of seven, had to walk nearly two miles to school, winter and summer, whether sleet or storm, or rain or burning sun; they made it an ambition never to stay away from school on account of the weather, and never to be "late," and one of them was heard to boast that in seven years it had never been necessary to give an "excuse" for being one minute behind time, even although in winter it was necessary to dress by gaslight. They did not average two days sickness in a year, and later they thought nothing of walking twelve miles at a time in the Swiss mountains. Sometimes they would be caught in drenching rains, and wet to the skin; on such occasions they made it a point to do one thing, let it rain, and trudged on more vigorously until every thread was dry before they reached home. There is no unmedicinal remedy known to men of more value in the prevention of constipation than a few miles joyous walking; let one

follow it up a week—a walk of two or three miles in the forenoon—and, except in rare cases, when a longer continuance may be made, the result will be triumphant; and yet nine persons out of ten would rather give a dollar a bottle for some nauseous drops or poisonous pills than take the trouble to put in practice the natural remedy of walking. Nor is there an anodyne among all the drugs in the world which is the hundredth part so efficacious in securing refreshing, healthful, delicious, glorious sleep, as a judicious walk.

HOW TO WALK WELL.

It seems an easy enough matter to walk, and yet very few ever learn how to do it properly. One can reckon among his acquaintances very many fine-looking men and women, but, perhaps, not one of the entire number is a good walker. The ancient poet tells how the goddess was known by her walk, but that distinguishing mark of exalted birth seems to have passed away with the old mythological days. We talk of lordly port and queenly bearing, but such scions of royalty as have visited our shores seem to have very little that is regal in their personal carriage. We are not without fine specimens of male and female beauty, but we are too often disenchanted when we see these Venuses and Adonises moving about. There is no real reason for this unseemliness of motion. Men and women are particular enough about their dress, but they shamble, trot, or waddle along without much apparent regard for the appearance they make. Nine-tenths of us, however, are dependent upon our legs for transportation when we

desire to move from place to place, and might, if we chose, make this half-involuntary action of walking conduce very materially to our bodily health and vigor.

One of the secrets of good walking is to be able to balance the body easily, first on one foot, and then on the other, and it is for this reason that recruits for the army are first instructed in "balance step." When the soldier has learned to stand steady on one foot, he then can walk without swaying, and preserve that steadiness in marching which is always a mark of well-drilled troops. So if civilians wish to learn to walk as well as soldiers, they must, like them, first learn something of the mysteries of balancing. But it is not an easy thing to stand steady on a narrow sole with a small heel, and this is just the difficulty with the walking of fashionable people. The sandaled feet of those ancient beauties, whose forms have come down to us preserved in marble, are beautiful in their unrestrained naturalness, and very unlike those of modern belles, or beaux either, for the matter of that. Dio Lewis advises girls who want to walk well to wear "broad shoes with low heels; and to keep their chins close to their necks;" and although books and lectures have been written on the subject, we believe the whole story is comprehended in these conditions. With low heels and broad sole it is not difficult to balance the body; while by drawing in the chin the shoulders are naturally thrown back, the lungs given full opportunity to expand, and the head carried erect.

Dr. A. L. Wood, in the *Herald of Health*, gives the following sensible advice on walking. To obtain the greatest amount of good from walking, it must, like every thing else, be done right. In the first place, it is always best to have some definite object in view when

going out to walk, some particular place or object of interest to see, some purpose to accomplish, or some friend to visit, and not walk merely for the purpose of walking, if any other object can be attained at the same time. But better walk without any other object than not walk at all. The position of the body while walking is of great importance. The body should incline slightly forward from the hips, if walking slowly, and the inclination should increase according to the rapidity of the walk. The head should be kept on a line with the body, the shoulders and hips held back, and the chest unimpeded in its action by tight clothing or otherwise. The arms should be allowed to swing freely at the side. The respiration should be carried on entirely through the nostrils, and not through the mouth. In commencing a long walk, walk slowly at first, and gradually increase the speed. Invalids, and persons who are unaccustomed to walking, should begin with short walks, being careful not to overdo, and increase the distance as their strength and endurance increase. Any one who will practice this precept—never ride when you can just as well walk—will not only be more vigorous and healthy, but will accomplish far more than he or she otherwise would.

Hall's Journal of Health says: "An erect gait gives to a woman a queenly appearance, and to man an air of manliness, integrity and fearlessness. To bend forward or downward while walking indicates mobility, depression or mental trouble, and aggravates itself and promotes diseases. Pads and supports are all pernicious, and are worse than useless, because they teach the system to rely on them and support the one part of the body without causing a natural strain on some other part, and to that extent, tend to disease that part. There is

always one easily available and successful method of acquiring an erect, manly gait, without any material effort, or feeling of awkwardness. Let the chin be a little above a horizontal line, which is easily done by keeping the eye fixed on the top of some person's hat or bonnet in front of you. The habit of this erect carriage may be facilitated by accustoming yourself, when at home, in the garden or other places, to walk with the hands behind, held in one another, and the head up, as is done in singing a tune."

To sit or walk erectly is not only necessary to health, but indispensable to good looks. The neglect of it weakens the lungs, by not giving them room to play, and makes either man or woman appear clumsy, awkward and boorish.

Dio Lewis says: "If you will hold yourself erect, with your chin close to your neck, swing your arms freely and move rapidly, you will find walking the very best exercise. Few muscles escape work, while you enjoy fresh air, sunshine and a constant change of scene. I have taught gymnastics as a profession for many years, but as a source of health I believe walking is superior to any of the artificial exercises." The best hour during the autumn and winter, for people of average strength, is from 7 to 8 o'clock in the morning; for invalids from 10 to 11. Mrs. Lewis and myself have walked around our Common more than a thousand mornings with the happiest results upon health and spirits. *Walking*, when *properly managed*, is the best of all exercises. None of the artificial exercises can be compared with it. Every important muscle works actively in walking. Notice an active walker. See how every part works—legs, hips, arms, shoulders—the man works all over. Brisk walk-

ing gives even the upper half of the body fine play. Then walking costs nothing. You are not obliged to join a class, and employ a teacher. Again, walking takes you into the open air and sunshine, while in gymnastics you are in the dusty atmosphere of a hall; and it is not a small advantage that in walking you enjoy a succession of changing scenes—suggestions of new thought. And walking with a friend, the conversation may be interesting and instructive. All this may be found in natural and active walking.

Rev. Edward Eggleston says of his experience: "There is no exercise so fine as walking, if one knows how to take it. When a disease in one part of the body becomes incurable, the physician will sometimes attack it by "revulsion"—that is, by attacking some other part, and thus diverting the sickness from its stronghold. So a man who uses his head until the brain is weary needs to tire his legs. You complain that you cannot walk. Because you do not observe the rules. Walk easily. Take time. Do not hurry yourself into exhaustion. Begin by walking as you can bear it. Every now and then I backslide, get nervous. Think the sun hurts me and take to riding in street cars. Three months ago a mile wearied me. The circulation tended to the brain. Sleep was difficult. I determined to seek relief, as before, in walking. By walking at first two miles, and afterwards increasing the distance, I was soon able to trudge off ten miles in an afternoon without regard to heat. Sunstroke? It is not people who live right and exercise freely that suffer from the sun. Did you ever sit in a Turkish bath? The first three minutes you are ready to faint, to burst, to die, to blow up with the intolerable dry heat. But when once the perspiration has

started, and all the little safety-valves were open, you were able to take with pleasure thirty or forty degrees more of heat than you had when an explosion seemed imminent. So when you are nervous about walking, and the heat seems dangerous, you have only to start off in a steady, easy gait. At the end of a mile walking is delightful. You wouldn't ride if you could."

A scientific lecturer on walking says his experiments show that one side of a person always tends to outwalk the other side. It is not possible, when the eyes are shut, to walk in a straight line for any length of time, and it will be found, where persons lose their way, that they almost invariably wandered off to the right rather than to the left. But it is pretty certain that most people in this world, even with their eyes open, are prone to wander to the *wrong* rather than to the right.

Dr. Holmes somewhere says that walking is a perpetual falling, with a perpetual self-recovery. It is a most complex, violent and perilous operation, which we divest of its extreme danger only by continual practice from a very early period of life.

Ladies, walk more; take long walks; get tired, no matter how tired; tired muscles in any well woman, from eighteen to forty-eight, only proves they need to be used; flabby muscles also prove that the system lacks tone. They are like a violin with the keys loose—the strings are without vibration and the instrument is dead. Wear the best of calf half boots, ladies; exercise with them till you are well enough and brave enough to go out, well clad, in all weather. Wear no rubbers, if you can avoid it. They are bad for the feet. If you need to paddle in slush and soft snow of spring, put on rubbers, for the feet must be kept warm and dry, but use them as

little as possible. Wear, when out of doors, solid soled shoes. Take all the open air exercise you can by walking, and you will be in your old age as fine-looking as you are now; and, moreover, the next generation will be as proud of you as the young fry of Old England are of their stately mothers. We have seen in Hyde Park, London, on a fair day, hundreds of grandmothers fresh and really handsome; and scores of mothers with marriageable daughters, which, had we been in the marrying line ourselves, we should hardly have known which to have popped the question to, so dazzling was the real beauty and youth of both. Our American ladies can possess these charms, and carry them into the age of three-score, if they will walk more in the open air, and inhale daily the health-giving properties which can be obtained in wearing out a couple of pairs of tip-top ten dollar gaiters per year. We hold that one ten dollar pair of walking shoes will save twenty doctor's visits at five dollars each. Take your choice, ladies.

What our girls want is air and exercise—*walking* exercise. They are pretty, but they are too fragile; there is no soundness to them. Air and exercise are undoubtedly the great curatives; a man or woman either may commit a great many sins against life and health with comparative impunity if they get enough of these simple agents.

The father of Harriet Hosmer, the sculptor, was an intelligent and skillful physician of Watertown, Mass. When she was some twelve or fourteen years of age he had just buried his wife and two sons, all of whom had died of consumption. His other daughter had begun to droop, and, finding her case hopeless, he determined, if possible, to save Harriet from a like fate. For this pur-

pose he separated her from her sister, took her from school, and furnished her with a gun and fishing-rod, that she might find amusement and exercise in the open air. And when, subsequently, he sent her to school, at West Stockbridge, it was with the express stipulation that she should be free to roam the fields, to hunt or fish, and engage in such sports as would develop and strengthen her physical constitution. The result is a sound mind and a sound body, both capable of enduring alike a large amount of intellectual and physical labor.

RIDING HORSEBACK.

The most experienced physicians agree that horseback exercise is beneficial to all, but more especially so for invalids and sedentaries. The gentle motion of the chest, the increase of respiration, the gradual shifting of every drop of blood in the arteries, the fresh, buoyant wings given to the spirits during an hour's gallop on a clear spring morning, must render it an antidote for nine-tenths of mortal maladies. We believe that equestrian exercise, under a judicious direction, is, of itself, if timely commenced, a cure for consumption. There is no civilized country on the globe, where physical education is so much neglected as in America; the consequence of which is, that our males are semi-dwarfs, and our females little more than house plants. The English, physically, the most beautiful nation on the earth, are assiduous in this department of education. They would think a child's education incomplete without a thorough knowledge of horsemanship. One of the most interesting pictures that the pencil of an artist ever drew, is a finely

formed and graceful woman mounted on a spirited charger, who, proud of his fair burden, curbs his glossy neck, and spurns the earth as if it were not good enough for him to stand upon. It has been said that a lady's position on a horse is dangerous. We do not think so. Every position is either dangerous or awkward until we learn to manage ourselves in it. A lady, with proper care and training, can get the management of a horse so completely that he will be put to his last trump to throw her. In evidence, we may name Fanny Kemble. A few hints and practice are all she needs. The left foot should be placed in the stirrup a little above the second joint of the great toe. The reins should be brought up between the fingers of the left hand, and firmly held between the thumb and first finger. The left shoulder should be brought well forward, and the right hand, holding the whip, fall gracefully by the right side. The pommel of the saddle should not be held by the right hand. The fair rider should throw her shoulders back, and give as much expansion to the chest as possible, and keep as nearly as she can the momentum of her horse. If the steed springs suddenly to the left, and she agrees not with his direction, she gets a counter motion and falls to the right, which is neither pleasant nor graceful.

Physicians of all time have recommended riding on horseback as the most healthy exercise, especially for ladies. They have steadily adhered to this throughout all systems of medicine. Steaming, blood letting and starving have all had their doubtful adherents, but horseback riding never. In most families the buggy and the switch tail pony are as common and belong to the family almost as much as the baby, while the side-saddle is hung high upon a peg in the barn and as dusty as a lukewarm

Christian's Bible. Good riding horses are very rare; if the saddle is *ever* used it is put on the "square trotter" and he is allowed to punish the rider for a season, then it is hung back for good. There is a recreation in it that is different from all other kinds of exercises, besides there is a self assurance in having the steed full in hand and ready for the flight. How grand it is to meet the storm face to face, and leave the hills behind. How many of the faint hearted of to day know anything about the self confidence thus acquired.

As for ourself we would rather pet the horse than the poodle. We have no liking for the woolly little scamps. There is something nobler in the attachment of the horse, his devotion is without an equal in any other animal. Who does not love to have him for their companion for at least an hour each day?

It has been ceded by the admirers of the elegant and beautiful that there is no attitude in which a lady can appear to a better advantage than upon horseback. We cannot see why so healthful and elegant a mode of exercise should be so seldom practiced.

There is more health, comfort and happiness in a good saddle than those uninitiated in the equestrian art have conception of. If our young ladies could spend far more time than they do on horseback, we would meet with fewer sallow complexions and feeble constitutions. There is no great difficulty in getting ladies, especially if they can show handsome figures and graceful attitudes, to mount any good horse and gallop out for two or three hours; and when they do so, how often do we see them come back with the full glow of health and satisfaction beaming in their countenances.

But married ladies, and more particularly those who

have to bear the burden of family cares, are still more in need of such invigorating recreation. They want fresh air, with a free and vigorous circulation of the blood—not the draught of air through a buggy or carriage, with the blood moving sluggishly in the veins; but an atmosphere which develops the whole person, with such exercise as will give activity to every vital organ without the weariness of walking or the languor generated by reclining on easy cushions.

The exercise given by the motion of a horse is just as much superior to that of a carriage, as the free, open air, enjoyed in a ride to the country, is to the cooped up, oft breathed air of a city.

If a lady who can find opportunity, or whose father, brother or husband can make the opportunity for her, would spend a part of every day on horseback—not simply the bright pleasant days, but also the days when some considerable wrapping up becomes necessary—there is no doubt that the aggregate amount of human happiness would be greatly increased.

If you are an invalid and love life and wish to get well, go on horseback. The seat of health is the saddle, and a dyspeptic or consumptive should be like an Arab, always on horseback.

GYMNASTICS.

Three years ago last summer, the writer of this article was a miserable invalid. He was pale, thin, dyspeptic, desponding, and generally uncomfortable to himself and his friends. His chest was sunken, his posture stooping, and his gait listless. This unfortunate state of things was induced by a sedentary life and too close application

to books and the writing desk. Six weeks of out-of-door exercise in the country wrought some improvement, and if it could by possibility have been continued, might have restored vigor; but writing and study must be resumed, and it was a problem how at the same time to recover and retain health. In this emergency the advantages of the Gymnasium were set forth to me, and I was led to join one. I spent about one hour of each day in the exercises, and followed them with a bath. They consist in ascending a ladder with the hands in different ways, pulling and raising weights, turning the body in rings suspended from the ceiling, throwing the body along parallel bars and by a variety of methods, carrying out the fundamental plan of bringing into full and thorough play and severe tension each of the two hundred and fifty-seven pairs of muscles in the body. At the same time I was practising myself more or less, though with no great regularity, in "breathing exercises."

These consist in inhaling pure air steadily and deliberately, until every air-vessel of the lungs is filled to its utmost capacity, and then expiring it as slowly as possible, taking care at the same time not to use the chest as a bellows, but to keep it out firm and full, and supplying the vacuum, caused by the expiration, by raising up the diaphragm. Many perform this exercise with the assistance of a tube made for the purpose. I did not use one, but gained the object by contracting the muscles of the throat, in which there is the additional advantage of strengthening the vocal organs. A goose quill, cut at both ends, makes as good a tube as any, only it does not *cost* quite enough to be fashionable. In commencing these breathings almost every one is made faint; but this

effect is soon overcome. Their power to increase the capacity of the lungs is truly wonderful.

My muscular strength began to increase immediately, and so steadily, that for months scarcely a day passed that I did not accomplish some feat impossible to be done the day before. Digestion improved in the same ratio, and soon became perfect. The rich color of health came to my cheek and elasticity to my step. My weight also rapidly increased. When I commenced, it was only one hundred and thirty-seven pounds, at the end of three months it was *one hundred and sixty*. In one fortnight I gained twelve pounds, or one each day, "Sundays excepted," and really it was an exhilarating pleasure to bring down the scales to the tune of one additional pound at every visit. In less than a year my chest had increased in size by actual measurement nearly five inches.

The difference in the amount of literary labor that I was able to accomplish during the first winter's attendance at the gymnasium, as compared with the present one, was remarkable. Previously I was exhausted by ninety minutes of continuous writing, but now I could and have composed for *ten* hours with scarcely an interruption to the motion of my pen. My gymnastics cost *time*—nearly two hours of solid time out of the business part of the day; but I found it good economy to spend them in this way, as I could accomplish as much in eight hours as before in twelve. And, more than this, my "animal spirits" became so exuberant. Joy and hope took the place of gloom and despondency. Existence itself—the mere consciousness of being—was a delight—a luxury; and I felt, when walking, an almost incessant impulse to *bound*, from the simple excitement of perfect

health. And only six months before, life had been a burden ; with a sluggish step I had dragged myself about, while a settled foreboding of evil lay cold at my heart.

During the past three years the usual course of perfect health has been interrupted only when I have neglected the gymnasium, and by one slight attack of a contagious disease. My experience is not an isolated one. I could multiply instances of the most striking restoration of health, of elasticity of mind, and removal of nervous debility, consequent upon faithful attendance at the gymnasium.

In a letter addressed to Dr. Bethune, President Felton said, " My Greek studies taught me that bathing and gymnastics were nearly as essential as languages and mathematics, and I devised, with forethought and deliberation, a system of shower-bathing and dumb-bells, which changed me in a few weeks from a 'vertiginous' weakling, unfit for anything, to a sturdy fellow ; fitted, if need were, 'to sling a sledge or follow a plough.' I reverence the dumb-bells and shower-bath, and were I a Pagan, some allegorical representation of these should soon find a place in my Pantheon."

The late Daniel Webster, whose passion for manly and out door sports is well known, many years ago wrote a letter on this subject, from which the following are extracts: "I am highly pleased with the idea of a gymnasium. Those who have the charge of education seem sometimes to forget the body is a part of a man. The number of young men who leave our colleges, emulous indeed, and learned, but with pale faces and narrow chests, is truly alarming. If it be desirable that there should be cultivated intellect, it is equally so, as far as this world is concerned, that there should be also a sound

body to hold it in." In a speech made by Edward Everett, at a festival in commemoration of the birthday of Webster, the following true remarks occur: "From morning to night—from January to December—brain and hands, eyes and fingers, the powers of the mind, are in spasmodic, merciless activity. There is no lack of a few tasteless and sourless dissipations which are called amusements, but noble athletic sports, manly out door exercises, are too little cultivated in town or country."

The gymnasium ought to form a part of every college and institution of learning, and its exercises should constitute a regular portion of the course of instruction. It would be well if the most active member of a class had his college honors as well as the first scholar; the former would be likely to make a vigorous and useful member of society; the latter is apt to degenerate into a second rate man or a useless invalid. Follow the careers of most of the first scholars of our colleges, and see how few maintain, in after life, the supremacy they gained as students; in the struggle for life the strong arm is as necessary as the brain. What Cicero and Cæsar, according to Plutarch, found time to do in the midst of the stirring events of ancient Rome, surely young students and merchants can find time to do at the present day.

As gymnastic exercises are so powerful for good when properly directed, they are as powerful for evil if injuriously performed. Physical education, like the practice of medicine, should not be in the hands of empirics, ignorant of the structure, and functions, and capabilities of the human body in its various constitutions; but it should have its learned professors, anatomists, and physiologists, and physicians, and be elevated to the rank of intellectual and moral discipline.

Exercise, then, by increasing muscular action, quickens the circulation of the blood, introduces more air into the lungs for its purification, facilitates all the processes of nutrition and secretion, creates a demand for food to supply the waste of tissue, and provides for the healthy performance of every animal and organic function.

The introduction of gymnastics, good and graceful as they are in the work of physical culture, must fall short of their full advantage when the pupils are pressed too hard in their studies.

So, we cannot eat a cake and have it, too. So we cannot use up all our life force in mental work, and have it for muscular action. Scholars overburdened with book work, seem languid, lazy even, because the life force, which goes from brain to body, is so exhausted that muscular inspiration is lacking.

So, if we wish students to enter with spirit and profit into physical exercise, they must not be exhausted by study, for exercise does not create nerve power, but exhausts it in such a way as to improve appetite, digestion, assimilation and replenishes the fountain, just as the steam engine must use part of its force to supply itself with water, out of which to make steam. So we must use some of our nerve power to supply mere bodily wants, or we shall have no steam with which to do our thinking.

Piano playing seems to exhaust nerve power very rapidly in proportion to the time expended. Dimness of vision, bad sensations in the head, numbness of fingers, all show exhaustion of electric force. Sometimes partial paralysis, sometimes involuntary action of the muscles (called Chorea or St. Vitus' Dance, when the motions are more satanic than saint like,) is the result of much

practice at the piano, with girls from twelve to twenty years of age. When confined to it earlier than this, the body fails to develop, and the little girl keeps little longer than she ought; with a flat chest and undeveloped form she enters her teens, looking like an old lady, poor and sallow. Such withered specimens need baths, bread and beef, mental rest and moderate exercise, and they will then mature bodily.

ADVICE TO SKATERS.

Skating is admirable exercise. It brings the muscles into play; fills the lungs with fresh air; hardens and braces the constitution, and invigorates all parts of the human frame. But like all other exercise, it should be taken in moderation, and with proper surroundings. Four or five hours on the ice, with the thermometer down in the teens, is too severe a tax on the lungs, especially of young or old people. It does harm instead of good. Then, again, that amount of physical exercise is more than should be taken, if beneficial effects are expected. In some cases, also, comfort, so far as clothing is concerned, is sacrificed on the altar of fashion, and young gentlemen and ladies appear in costumes more fitted for the ball room than the river or rink. Cold, cough and consumption follow as a matter of course. These cases are bad enough, but they are if possible overmatched by the conduct of parents in exposing little children on the ice for hours with insufficient clothing. This is a practice that cannot be too severely condemned. Many children are killed in this manner each winter. When people indulge in winter sports, let them prepare

for the occasion in a suitable manner, and then no bad consequences will follow. Especially let them take care of their children.

Before starting for the ice, bathe your feet in cold water, dry them perfectly, and give them a good rubbing with a crash towel, put on a pair of woolen or heavy cotton stockings, and your feet will remain comfortably warm for three or four hours in the coldest weather. This will apply to any other outdoor exercise as well as to skating.

Skaters should bear in mind that when fatigue develops itself, it is time for them to withdraw from the ice field. The pursuit of pleasure by the aid of skates, when the pursuer is tired and overheated, may result in permanent disabilities, such as chronic rheumatism.

In the first place, learn to stand upon your skates, or even to walk about the room with them, before you venture upon the ice; or, better still, obtain, if practicable, a pair of parlor or roller skates, and practice with them at least an hour a day. This latter kind are admirable, for three reasons. Firstly, they save *time*, which, in our mild winters, is important, since one cannot afford to waste the comparatively few chances of skating in learning to do, upon the ice, that which may so easily be acquired at home. Secondly, they save *health*; for it is not the expert skaters who catch cold, but the novices, who stand shivering, vainly trying to rest their aching ankles. And, lastly, they save *bones*; for there is not the slightest danger of accident with the rollers, provided they are carefully used.

But to return. I would advise beginners, in selecting ice-skates, to commence with *slightly* grooved runners, as the smooth kind, though best adapted for proficient

skaters, are somewhat dangerous at first. They may be readily adopted after the rudiments are acquired, and any cutler will grind a pair of grooved runners into flat ones for a mere trifle.

A stout boot should be worn, laced high on the ankle, and furnished with a heel capable of admitting the heel-peg, if required. The sole of the skate should be of the same length as the shoe, and all superfluous strapping should be avoided, as it prevents circulation, and the benumbed foot may be frozen before the skater is aware. A light stick or pole held in the hand will be found useful at first, but the sooner it can be dispensed with, the better. Choose ice which has been slightly roughened by skaters, and begin fearlessly but not in a hurry. Deliberation will insure grace, but speed must be attained by practice. Keep the feet near together; the ankle of the right foot firm, the knee bent, and the body inclined slightly, throwing its weight on the forward foot at starting. In striking out, the left foot should start at an angle of 60° from the center of the right, which, in turn must strike out from the left at the same angle in an opposite direction. Each stroke should be slightly curved, and as long as possible, as the great aim in skating is, while moving, to balance the body on one foot at a time. Care must be taken to strike out evenly and equally with each foot, or a jerking and awkward motion will be acquired.

The arms should not be *swung*, but gently raised, alternately with the feet, and even then as imperceptibly as possible. Some of the best skaters keep the arms folded in front of the body.

These directions will apply for either "rollers" or skates. We do not believe that any more are necessary;

for after the feat of skating at all is accomplished, the best instructors in the world are smooth ice, a good pair of skates, and the attraction of gravitation.

No exercise can be more delightful, or, if sensibly indulged in, more healthful than skating, or better calculated to make young America broad-chested and strong-legged, and to turn the girl-phantoms of the day into graceful, rosy, and well-developed women. It is the abuse and not the use of the art which has served to create a prejudice against it in the minds of many parents and guardians.

The Dutch are a solid, practical people, certainly neither given to recklessness nor trouble with national ill health, and they, one and all, are skaters. From time immemorial skating has been the universal winter pastime of the Hollanders; and young and old, rich and poor, grave and gay, alike skim over the frozen canals which intersect the country. Children skate to school, peasants to market with their merchandise on their heads, grave business men to their daily pursuits, clergymen to their churches, and solemn doctors to their expectant patients. According to a modern writer, in Friesland it is not unusual for a person to skate for a long time at the rate of fifteen miles an hour. The same writer tells us that at a skating race at Groningen in 1801, two young women won the prize, having accomplished a distance of thirty miles in two hours. "In England," he adds, "some very skillful and swift skaters have figured. One of the most surprising feats on record is that of a Lincolnshire man who, in the year 1821, for a wager of one hundred guineas, skated one mile in three minutes and two seconds—a rate of speed almost equaling that of a race horse."

We need not, however turn to Europe for instances of

fine skating. We have had our own famous skaters here, both before and since the time when the Boston boys complained to General Howe that his soldiery were ruining their ponds and spoiling their fun. Only last winter a fragile young girl of Boston electrified the skating world by the marvelous feats which she performed in the fullness of her enjoyment, quite unconscious of the wondering eyes which were following her every motion. On the Newark meadows, where thousands of enjoyment-seekers assemble during the skating season, a coatless and almost hatless colored boy has for two winters carried off the palm of excellence even in the midst of professed and distinguished skaters.

But, I would like to suggest a few precautions which are indispensable to a rational enjoyment of the sport.

1st. Be careful not to have your skate-straps too long, for they are apt to slip down, after a while, and in that case will inevitably get under the runners, and cause a fall.

2d. Dress warmly. Boys' clothes generally afford ample protection from the cold; but girls should never go upon the ice without wearing Turkish or gymnasium trowsers.

3d. Never kneel or sit upon the ice, especially when warmed by exercise, without using a cushion or some intervening substance by way of protection.

4th. Keep your mouth closed as much as possible while in motion, breathing through the nose only.

5th. Do not sit down immediately after skating without having an extra garment to throw about your shoulders.

6th. If you are to ride home, before starting walk about for a few moments after your skates are off. When

the distance is not too great, however, walking is always preferable on such occasions to riding.

7th. Don't attempt to appear brave, at the expense of common sense, by venturing upon thin ice, or near dangerous or suspicious-looking air-holes.

8th, and lastly. Don't go skating at all, whenever by so doing you neglect any home or school duty; for that is "penny wise and pound foolish" in the happiness line, as you will one of these days find out to your heart's content.

SWIMMING.

No branch of education has been so much neglected as this. Man is the only animal which does not swim naturally. He sinks deep in the water from the size of his brain when not properly exercised. This is to say the weight of his brain above his nose sinks that organ a little beneath the surface, when he is in an erect position, before his body displaces its weight in water, and thus finds an equilibrium. With the nose under, one must breathe water and drown. But when the brain comes to be exercised enough to throw the head back and the nose up, pointing to the very zenith, and keep the hands and feet carefully under water, then by the laws of hydrostatics, the nose will continue above the water and the person will float like an empty bottle which is so balanced as to keep its mouth uppermost. No human being can sink in still water of any depth, lying on his back with hands and feet under water.

Any human being who will have the presence of mind to clasp the hands behind the back, and *turn the face to-*

ward the zenith, may float at ease and in perfect safety in tolerably still water—aye, and *sleep* there, no matter how long. If not knowing how to swim you would escape drowning when you find yourself in deep water, you have only to consider yourself an empty pitcher—let your mouth and nose, not the *top* of your heavy head, be the highest part of you and you are safe. But thrust up one of your bony hands and down you go; turning up the handle tips over the pitcher.

The best plan for learning to swim, whether in fresh or salt water, is to attach a cord to a tree, or boat, or machine; or, if these are not available, get a companion to hold the end of the cord on shore. With this cord tied round the arm or waist, let the beginner walk out till the water is up to his chin, and then turn round and face the shore. He may even then back out a little farther, when he will find the force of the water taking him off his legs, and he will then find no difficulty in making a few strokes, even at the first attempt. In fact, by holding the head well up, which necessarily expands the chest, he will find he cannot help himself from swimming, or rather floating; and by gently thrusting out, and drawing in the hands and feet, exactly in imitation of the movement of a frog in the water, he will accomplish more in two or three days than in as many weeks with corks and bladders—that is, he will have more confidence in himself, and know more of the power of the water to sustain him on its surface. A better knowledge even of this he will have by keeping his back to the shore till out in deep water as far as he can go, then throwing back his head, expanding his chest, making, as it were, a curve with the back, and allowing the legs to float outward and from under him, he will find that his

companion on shore could draw him complacently in without sinking. A few such experiments, and then he might, by the gentle action of the hands and feet, work himself on shore. With the cord, the young beginner will have no fear, saving for a few mouthfuls of water, and these he will not care about so long as he learns to swim.

We all know that breast swimming is the style commonly adopted all over the world. Beginners commence on the breast, and in nine instances out of ten they continue to move through the water on their breast all through their lives. It is in water what walking is on land. To the beginner it has the advantage of being the easiest to learn, and to the adept it has the attraction of having "last" about it. Long distances are mostly performed in this style, as being more steady, and consequently less fatiguing; so that here the breast frequently conquers its more dashing rival, the side. Also, when swimming for pleasure, rather than for glory, we instinctively take to the breast. The chief rules are: 1. Spread out your hands (fingers closed) widely, so as to describe as large a circle as you possibly can. If you watch good breast swimmers you will at first be surprised to observe what a broad sweep they thus make. 2. The same rule holds good for the feet; you can not describe too large a circle; therefore send out your legs to their utmost length and breadth. 3. After you have described this circle, in order to complete the stroke, bring the heels together sharply and vigorously. Remember, it is this jerk and quick meeting of the heels which send you forward. It is in this particular that Gurr especially excels, so that he can propel himself five or six feet each stroke. A long stroke could not be made in any other way. The

secret of the matter is this, that after the sharp contact of the heels, your body instantly floats along, or rather cuts through the water those five feet without any other effort on your part. The stroke made with hands or arms really is of small service, except to maintain your balance on the water.

As many parents are wishing to know how girls can be taught the use of their limbs in the water, it may be interesting to them to hear how the art is taught at Paris.

The water is that of the Seine. This is the least agreeable circumstance in the case, as the water of the Seine is quite as unfragrant in the Summer months as that of the Thames. Whether it is purified on entering the baths, I do not know. Let us hope it is. The bath is moored in the river, and the space occupied by water is 120 feet in length; a course long enough to afford room for all the exercises connected with swimming. A wooden platform, three or four feet under water, reaches to about the middle of the width of the bath; and this is for the use of children, and mere bathers who do not swim. The other half is of a considerable depth in the middle, admitting of practice in genuine diving.

The dress is excellent for the purpose. It is made of a light woollen fabric, which does not absorb much water. The trousers are loose, and fastened to the ankles. The upper dress, also loose, extends to the knee, and is belted round the waist, and closed at the neck. The first step in the process of teaching is to make the pupil understand how to keep on the surface, and how to sink to the bottom. Most people know that to spread out the limbs is to float, and to double one's self up is to sink; but it is not everybody who knows that the quickest way of going to the bottom is to raise the arms above the head.

This is precisely what women do when they fall out of a boat, or find themselves overboard in a shipwreck. Up go their arms in their terror; and down they go to the bottom like a shot. This is the action used by divers who want to reach their point by the shortest way.

From the ceiling of the Paris bath hangs a rope, which travels along on a sort of crane. Where this rope touches the water, a broad belt is attached to it. This belt is fastened easily about the pupils waist, supporting her in the water, and leaving her at liberty to learn the action of the limbs in swimming. She is made perfect in these, and must then try her powers without support. To render her safe and preclude fear, the instructor walks along the edge, just before her, holding a pole within her reach, which she can grasp in an instant, if fatigued, or alarmed. It does not follow that we must have swimming-masters. The art is taught all along the rivers of Germany, and invariably by women in the women's baths. In that case, the dress is less elaborate, and there is more freedom and simplicity in the practice.

After learning the art in fresh water, it is easy to swim in the sea, from the density of the water, and scarcely possible to sink. A woman who knows how to float is safe for many hours in the sea, as far as keeping on the surface is concerned. Among breakers or sharks, or in extreme cold, the peril is not of drowning simply. The simple peril of drowning might be reduced to something very small, if everybody could swim.

Girls should not neglect any opportunity they may have to learn to swim. In these days of universal travel, when women are exposed to as much danger as men, it is quite as useful for the weaker sex to know how to swim as the stronger; besides, it is unfair and selfish to

trust to the chivalry of men. Sea-bathing affords some practice; and we do not see why parties in the interior of the country should not avail themselves of some suitable spot in a lake or river, to use for a swimming-school. A neat costume obviates all objection to the social acquisition of this most desirable accomplishment. All Natatoriums, walled in and roofed over, are objectionable, being close and damp. Sunshine and open air are necessary to the healthfulness of the exercise.

Lloyd's Steamboat Directory gives a thrilling instance of the necessity for women knowing how to swim. When the ill-fated Ben Sherrod was in flames on the Mississippi River, and the lady passengers who had thrown themselves into the water were drowning around the boat, the wife of Capt. Castleman jumped into the river, with her infant in her arms, and swam ashore, a distance of half a mile, being the only woman saved out of sixteen. She had learned to swim when a girl.

Swimming is a tonic to the mind. There is nothing which symbolizes the contests and the triumphs of life like wrestling with a heavy surf. It is your only sham-fight worth mentioning. I do not mean the lazy surf-swimming of level beaches, where your feet may at any moment drop and touch the sands; but I mean such a mighty play of all one's forces as may be found in the rock bathing off Cape Ann, for instance. The strife is in this respect, above all, like a battle, that it affects your imagination, and you pass through the phases of tremor and of thrill, reluctance and absorption, from a half-wish that it might never begin to a whole wish that it might never end. To plunge headforemost into the boiling surge, knowing that, while the surface water would beat your breath away, there is safety below; to come

up panting into the air, and find that you touch it only with your lips, while the great ocean grasps your body and your limbs; then to swim boldly out through the successive rollers, diving through each, and still coming up into some green interval of heavy calm; or to roll backward on the swell that rises, and just as the great wave crests over you to turn and dive; or outside of all the lines of wave to float and sway and give yourself to the mighty motion, as unresisting as a spray of kelp, but as conscious of buoyant vitality as a dolphin or a seal;—this is the glory of swimming.

The cases of supposed cramp attending the sudden sinking of swimmers is explained by *The Lancet*, on the ground that the respiratory muscles must be the ones seized by the cramp, and in their action they force the air from the lungs so effectually that the body, which was before lighter than water, now becomes heavier, and consequently suddenly sinks below the surface. This journal recommends gymnastic culture of the respiratory muscles as the best preventive against the affection.

THE ABUSE OF PHYSICAL EXERCISE.

Competitive exercise and games involving muscular efforts are liable to cause life-long injuries and even sudden death. Within a few months, a promising youth died in a few days after a college rowing match. In an article on the contest in English waters between the representatives of an American and British university, occasion was taken to discourage such competitions, not only on the ground of their physical danger, but from their tendency to encourage drinking and gambling. Very

recently the *London Times* says that "boat races are fast degenerating into betting traps, and such exhibitions should be removed from London waters." Base-ball, foot races, whether of walking or running, swimming matches, and all other forms of exercise which stimulate to the excessive employment of muscular effort, are alike unphilosophical, pernicious, and dangerous to life.

Athletes and prize-fighters do not often live long; the training process of itself is a strain upon the constitution and the powers of life. All violences and shocks to the human body are as certainly injurious as such things would be to any machine made by human hands. Many persons think that the "exposures" to rain and storm, and hardships, tend to "harden the constitution;" led to such a belief from having observed that sometimes persons who have encountered these hardships have lived to old age in good health; such a result follows their large enjoyment of the healthful influences of out-door air and the necessity of living on plain food, and even that not always over abundant.

The persons who live longest and who are most successful in business are those who live equably, whose physical movements, whose mental decisions, are the result of deliberation. Equability of mind, of temper, of bodily effort, should be cultivated by all. A walk of five miles in a day, will do an incomparably greater good than a race of the same distance within half an hour. The human constitution is no more hardened or improved by hardships or exposure to wind and storm, than a new hat or new coat is made better by being banged about. Dr. A. K. Gardner, in one of a series of admirable articles on health subjects, says with force and truth under the heading "Heart Disease," as a natural result of the

more stimulated condition of the people of this whole country, he personally noticed two distinct cases of heart disease as the result of the "double quick," and prolonged and hurried retreat at the Battle of Bull Run.

In the same article, the fact of the many sudden deaths among the business men of New York, its bankers, its brokers, and its merchants, is explained by the hurried life of the times. He says, with undeniable truth, "The physical exertion of a broker's clerk in Broad street one day is enough to develop heart disease. Watch one rush out from the heated Gold-room, without overcoat, run across the street, dodging men and vehicles, leaping, three steps at a time, up a couple or more flights of stairs; for five minutes in another hot room, writing with a frantic zeal; then again to dash out through rain, and sleet, and mud, to shout and halloo like a madman in the seething, streaming, tumultuous Board for a couple of hours, with interlarded repetitions of the recounted visits to his own or others' offices! How different is it from a Bull Run flight? "Think, too, of the emotions of the present. See the heart jealousies of society, the family discords produced by ill-assorted marriages, family feuds, disputes about religious differences, free love, spiritual manifestations and affinities, the thirst for gold and fashion, and then do you wonder that the main organ of the body—which, by its action, furnishes the nutriment to produce all these violent physical actions, all these extravagant passions, that beats the time to which these actions go—do you wonder that there is so much heart disease?"

To all, to the young especially, it is earnestly advised as an essential element in making human life a grand success, with a large exemption from the discouragements

and mishaps which makes it a misery to multitudes, to cultivate, sedulously cultivate, the habit in physical efforts and mental decisions, of deliberation.

The *Westminster Gazette*, in the course of an article against too much physical exercise, observes: "Those who have gone through the severest training become, in the end, dull, listless and stupid, subject to numerous diseases, and in many instances the ultimate victims of gluttony and drunkenness. Their unnatural vigor seldom lasts more than five years. It was especially remarked by the Greeks that no one who in boyhood won the prize of the Olympic games ever distinguished himself afterwards. The three years immediately preceding seventeen are years of great mental development; and nature cannot, at the same time, endure any severe taxing of the physical constitution. Prudence, therefore, especially at this critical period of life, must ever go hand in hand with vigor; for the evils of excess outweigh by far the evils of deficiency."

We are always going to extremities in education, as well as in politics and theology. The absolute neglect of physical development in the past generation we see followed in this by habits of exercise which threaten to make us a people of athletes and cripples. Not content with a rational use of the gymnasium, under the supervision of a teacher versed in physiology, developing *pari passu* the muscles and the intellect, as in the German universities, our youth aim each to be a Hercules, willing to be dunces if their arms and loins be strong. Hence the ball, and cricket, and boat clubs; hence the huge dumbbells and Indian clubs, which strain and fatigue the muscles, and lay the foundation for many diseases of the limbs and internal organs. There was a time when her-

nia, or rupture, was principally confined to the laboring classes, among whom it is so common that it is safe to say that one in every fifth you meet is affected with it in some degree. Now this infirmity is increasing among the students, many of whom lay the foundation for a life-long disease in the ill-judged exercises of the so-called "manly sports." We are not all the same, either mentally or physically; and exercise, like food and study, must be graduated according to the power of the individual. This distinction is generally overlooked; and the puny boy emulates the strong man, and subjects himself to vigorous efforts, and finds himself with distorted joints, rupture, and incipient disease of the heart and blood-vessels, while his more athletic rival becomes a better conditioned animal by the exercise. It is time, now that a trained boat-crew, and an unsuccessful one at that, is received with public dinners and by city delegations—with the honors of illustration in pictorial papers and commendatory letters from clergymen—with the fulsome flattery that their four-mile rowing-match will be a powerful agent in maintaining the *entente cordiale* between America and England—to ask ourselves the question if we are not carrying to a ridiculous extreme the power of muscle at the expense of brains and good health?

All physicians and physiologists are aware of the effects of rowing, as an exercise, on the heart and pulse. These effects have been carefully examined recently by Dr. Fraser, of Edinburgh, by means of the "sphygmograph," an instrument invented in France, which produces a self-written record of the swellings and contractions of the arteries. The delicate movements of these vessels, which the finger can not detect, are thus regis-

tered in a series of curves or waves, by a pencil on a strip of paper moved by clock-work. The "sphygmograms" of a crew of healthy persons before leaving the boat-house, and immediately after its return, are very different. The tracings show clearly that an extremely large quantity of blood is, in rowing, circulated with great rapidity, a condition of the circulation essential for the continuance of prolonged and severe muscular exertion. The effect of such a condition upon persons suffering from, or liable to functual or organic diseases of the heart, can be easily conjectured. There can be no doubt that many incipient diseases of the heart and blood vessels are rendered active and dangerous by the violent exercise of rowing; and that much discomfort, and premature death, are the result of this mania injudiciously and intemperately indulged in. As boat crews do not, and can not, here submit themselves to "sphygmographical" examination, and thus enable the predisposed to heart disease to retire in time to prevent further mischief, it may be a wholesome caution for the youthful oarsman to stop and consider, especially if violent exercise produces an uncomfortable feeling in the heart and lungs, whether he will indulge in any thing more than a moderate pull. The effects of rowing on the circulation do not differ from those of many other forms of muscular exercise. It is the *violence* of such exercise, whether with the oar, the bat, or the Indian club, which is the dangerous element. While it is safe to row or play ball simply for amusement, it may be eminently dangerous to engage in a boat-race or a ball-match.

It is supposed by many to be healthful for the young to engage daily in jumping, lifting, and exercising with the "dumb-bells," as a means of developing muscular

power. Perhaps the immediate effect may be to do this, but the ultimate result will be the destruction of that vitality essential to prolonged life. We have known many young persons rendered prematurely old and feeble, by excessive indulgence in what are denominated "muscular development exercises." Among these may be noted the customary gymnastic performances, and frequent and prolonged bathing. Exercise is good and so is food, but both may be indulged in to excess—producing injury rather than benefit. It is difficult for the young, full of life and emulous to excel, to restrict themselves to that measure of physical exertion which is alone compatible with a healthy development of strength, and that longevity which all desire. The safe rule is to "make haste slowly."

It is a law of nature that proper exercise strengthens the faculties both mental and physical, and that undue exercise weakens them.

An eminent physician once said to us that he wouldn't go up stairs faster than a walk if the house was on fire and he had valuable property to save, and we believe he wouldn't. Much walking up stairs is especially injurious to women, and frequent running up stairs is a sure ticket to heart disease.

To ascend a staircase eighteen feet high requires thirty-six times the force that is required to walk eighteen feet on level ground, and would therefore be equal to a level walk of three hundred and twenty-four feet.

We do not run in the street, nor in the yard or garden; why then run up stairs, and then complain that the stairs are so high? Now, there is really but little more difficulty in ascending several flights of stairs than there is in walking a straight line, provided we take suf-

ficient time to do it, which should be about twice as long as we should be in walking the same distance in the street. Walk up stairs slowly; rest at each landing; again walk steadily; and you will reach the top flight without exhaustion or fatigue.

OUT-OF-DOOR LIFE.

As one cannot be sick whose blood is in good condition, so one cannot be sick whose nervous system is in good condition. Diseases of the nervous system such as are described by nervous debility or nervous derangement are often caused by habitual life in-doors. House-life is unfavorable to the health of all persons, whether young or mature, who have what is termed predominant nervous temperaments. Persons who have the sanguine nervous or nervous sanguine or almost pure nervous temperament, have the strongest constitutional reasons for not living in-doors. Out-door life is a necessity, if they would have health. The habit or fashion with our people is to confine within doors most of the time those who are endowed with this peculiar nervous organization.

Most women and girl-children in America live habitually in houses. The great majority of them of Anglo Saxon lineage are either of the nervous sanguine or sanguine nervous temperaments. The worst thing then that can be done for them physically is to shut them up in houses, whether domestic dwellings, school rooms, churches, or other places of confinement. God never made any human being to live in the house. It may do for his sleeping room, his shelter from storm, as a place of warmth, as a place for his individual and special comfort, but to

dwelling within its walls is wrong, doubly wrong because there is no necessity for it. It is an abuse which should be mitigated if not abolished. The nearer a man gets to nature the nearer he is to God.

The fear of the weather has sent multitudes to the grave, who otherwise might have lived in health many years longer. The fierce north wind and the furious snow storm kill comparatively few, while hot winter rooms and crisping summer suns have countless hecatombs of human victims to attest their power. Except the localities where miasma prevails, and only in warm weather, out door life is the healthiest and happiest, from the tropics to the poles. The general fact speaks for itself, that persons who are out of doors most take cold least. In some parts of our country nearly one-half of the adult deaths are from diseases of the air passages; these affections arise from taking cold in some way or another; and surely the reader will take some interest in an ailment through which, by at least one chance out of every four, his own life may be prolonged.

All colds arise from two causes. 1st. By getting cool too quick after exercise, either as to the whole body or any part of it. 2d. By being chilled, and remaining so for a long time, from want of exercise. To avoid colds, from the former, we have only to go to a fire the moment the exercise ceases, in the winter. If in summer, repair at once to a closed room, and remain with the clothing on until cooled off. To avoid colds by the latter cause—and these engender the most speedy fatal diseases, such as pleurisies, croup and inflammation of the lungs called pneumonia—we have only to compel ourselves to walk with sufficient vigor to keep off a feeling of chilliness. Attention to a precept contained in less

than a dozen words would add twenty years to the average of civilized life. Keep away chilliness by exercise; cool off slowly. Then you will never take cold, in door or out.

Very many diseases are laid at the door of "the weather." It is the want of weather which brings multitudes in our larger cities to an untimely grave. "The weather" refers to the state of the out-door air; it may be cold or hot, wet or dry, serene or stormy, but it is all weather provided it is out of doors. Our wits are stimulated in winter to keep "the weather" out of doors; and we eat, and sleep, and lounge in an atmosphere of sixty, seventy, and eighty degrees, and that atmosphere loaded with impurities of human exhalations, tainted breaths, coal-gas, furnace-heat, and kitchen effluvia. It is not wonderful that, breathing all these from morning until night, and until morning comes again, with short intervals of an hour or two, now and then, during all the weary months of winter, that our children pale and pine away, and by the coming of the beautiful spring-time have such little vitality, that croup, and scarlet fever, and putrid sore throats, sweep them by multitudes into an untimely grave. The best health invigorator that can be taken, suitable for all classes and conditions, is two hours of "weather" daily rain or shine.

"What has the weather to do with business?" was the reply of a cheery-faced and successful business man, to the inquiry: "Are you out such a day as this?" Such an hour of sleet and storm and angry howling winds is seldom seen in these latitudes. It was approaching three o'clock, and the bank account had to be made right, or financial ruin would have been the result. Suppose the storm had been ten times more tempestuous, the wind

had been ten times more boisterous, the cold twenty degrees below zero, the City Hall clock would have struck three just as soon, and the bank notary would not have delayed one second later to have written the fatal word, "protested;" for business knows no law but that of promptitude; it knows no excuse; death even is no apology for the failure to meet a bank engagement. He who will succeed in making a fortune in a large city, must meet his engagements in all weathers.

It is precisely so in relation to health and disease. Moderate, daily exercise in the open air, with a cheerful spirit and an encouraging remuneration, is worth a thousand times more than all the remedies in the *materia medica* for the removal of ordinary ailments, when conjoined with temperance and cleanliness. But the same principle must be applied as in the successful prosecution of business. The exercise must be performed regardless of the weather. Not that exercise in bad weather is especially promotive to health; it is not as favorable to that end as good weather. But if exercise be needed at all, it is not the less necessary because it is raining, or very cold, or unendurably hot. If a man is hungry, he is not the less hungry because he can get nothing to eat. The necessity for exercise as a means of health is abiding; what makes the rule imperative, "Go out in all weathers," is, that we eat in all weathers; and if we exercise only when the weather is perfectly suitable, half the time would be lost in our changing climate. But the very energy and moral courage which enables a man to take out-door exercise, regardless of the weather, is of itself a potent means for the cure even of serious diseases.

The man who offers bad weather as an excuse for not going and paying a debt, will never succeed in business;

nor will he get well, who, for that reason, fails to take his daily exercise, when it is an indispensable means of cure. It is precisely the same in religion; he who is swift to offer bad weather as an excuse for being absent from the worship of the great congregation on the Sabbath-day, or from other properly appointed "means of grace," never did make an efficient church member, will have nothing "added" to his napkin at the great accounting day! It is the man who is faithful to his duty, always, "regardless of the weather," or anything else, who will hear the glad greeting from the Heavenly Judge, "Well done!"

Pure air is as potent as wine. Possessing none of the injurious qualities of the latter, it gives elasticity to the frame, imparts a ruddy glow to the cheeks, and drives the sluggish blood even to the finger-tips. The idea that air is detrimental to the complexion is an erroneous one, for the very habit of inhaling it reddens the blood, and renders the complexion clear. The redder the blood the more cheerful the disposition; while, on the contrary, the darker the blood the more melancholy the sensations. Late dinners and late hours should be looked upon as a pestilence, and avoided with horror. An ill-spent youth generally ends in a regretful old age; and this is brought about by a non-attendance to the common duties of health.

There is an ancient rule of health which reads as follows:

"Rise early, and take exercise in plenty,
But always take it with your stomach empty."

Exercise in the open air is indispensable. Hence a woman who does not work to maintain her family must work to maintain her life. She should employ her limbs as

well as her mind, for without exercise the body becomes enfeebled. It is recorded that in the reign of Henry III. of England, Lady Joan Berkeley "in her elder years used to saw billets and sticks in her chamber for a part of physic, for which purpose she bought certain fine hand-saws"—a custom which might be adopted with beneficent results by the ladies of the present day. It is a well-known fact that idle persons are always unhappy, for mental vigor cannot be preserved without bodily exercise.

Exercise, fresh air, health, are they not almost synonymous? The exquisite bloom on the cheeks of American girls fades in the matron much sooner here than in England—not only because of the softness of the English climate, as many suppose. It is because exercise, so necessary to the maintenance of health, is so little a matter of habit and education here, and so largely insisted upon in England; and it is because exercise when taken here at all is too often a matter of duty, and has no soul in it; while the English woman, who takes a lively interest in her rural enjoyments, inhales new life in every day's occupation, and plants perpetual roses in her cheeks by the mere act of planting them in her garden.

ADVANTAGE OF ACTIVITY.

All observation attests that the healthiest persons in the world are those most actively employed. The fact is true with regard to women as well as men, and in respect to mental as well as physical labor. The adage, "It is better to *wear* out than to *rust* out," is true in the ordinary sense in which it is quoted, but it should also be

remembered that *rusting* out is a more rapid process than *wearing* out. The ghastly goddess of ill-health and disease delights in sluggish blood and indolent muscles.

Motion and Life are inseparable. The celebrated Dr. Gregory, in the course of one of his medical lectures at Edinburgh, stated that one cannot stand perfectly motionless for half an hour; that he had once tried to do so, and had fainted at the end of twenty minutes, the blood requiring the aid of motion from the body in order to retain its full circulating power.

Frederick the Great said: As for my plan of not sparing myself, I confess it the same as before. The more one nurses himself the more feeble and delicate does the body become. My trade requires toil and activity, and both my body and mind must adapt themselves to their duty. It is not necessary that I should live, but it is necessary that I should act. I have always found myself the better for this method. However, I do not prescribe it for any one else, and am content to practice it myself.

An American is as capable of strong muscular effort, and as enduring as an European; but he does not get half the *pleasure* from his vigor. Indigestion and nervous diseases sour the life of half our people. These facts are notorious in Europe, and our sharp, worn American faces are known everywhere. There is much disease and bodily weakness among the poorer classes of the Old World; but as classes enjoying equal comforts, it will be found that the Americans are confessedly inferior in robust health. The dyspepsia which so curses our whole population is comparatively unknown among the older nations.

Indigestion and industry are two things seldom found united. One great cause of sudden ill-health is good

fortune. Let any man come into the possession of an independence, and he is pretty sure to break down, and go to Europe for his health. Such an accident more quickly impairs the energies and saps the health than anything else. We could mention dozens of cases of eminent professional men who "broke down" at the precise moment when they could afford it, and who would have laughed at ill-health a dozen years longer, if only poverty had stood at their doors.

Exercise for the body, occupation for the mind ; these are the grand constituents of health and happiness, the cardinal points upon which everything turns. Motion seems to be a great preserving principal of nature, to which even inanimate things are subject ; for the winds, waves, the earth itself, are restless, and the waving of trees, shrubs, and flowers, is known to be an essential part of their economy. A fixed rule of taking several hours' exercise every day—if possible, in the open air ; if not, under cover—will be almost certain to secure one exemption from disease, as well as from attacks of low spirits, *ennui*—that monster who is ever waylaying the rich indolent.

"Throw but a stone, the giant dies."

Low spirits cannot exist in the atmosphere of bodily and mental activity.

Many practical errors arise from overlooking the relation which nutrition ought to bear to waste and growth. Thus, it is no uncommon thing for young men who have experienced all the pleasures of a keen appetite and easy digestion, when growing rapidly or leading an active life, to induce severe and protracted indigestion by continuing, from mere habit, to eat an equal quantity of food,

either when growth is finished, and the system no longer requires the same extensive supply, or after a complete change from active to sedentary habits has greatly diminished that waste which alone renders food necessary. This is, in fact, one of the chief sources of the troublesome dyspeptic complaints often met with among the youthful inhabitants of our larger cities and colleges.

The error, however, is unhappily, not confined to the young, but extends generally to all whose pursuits are of a sedentary nature. Pursuing the pleasures of the table with the same ardor as before, they eat and drink freely and abundantly, and instead of trying to acquire a healthy desire for food, and increased power of digestion by exercise, they resort to tonics, spices, wine, and other stimuli, which certainly excite for the moment, but eventually aggravate the mischief by obscuring its progress and extent.

The natural result of this mode of proceeding is, that the stomach becomes oppressed by excess of exertion—healthy appetite gives way, and morbid craving takes its place—sickness, headache, and bilious attacks become frequent—the bowels are habitually disordered, the feet cold, and the circulation irregular—and a state of bodily weakness, and mental irritability is induced, which constitutes a heavy penalty for the previous indulgence. So far, however, is the true cause of all the phenomena from being perceived, even then, that a cure is sought, not in a better regulated diet and regimen, but from bitters to strengthen the stomach, laxatives to carry off the redundant materials from the system, wine to overcome the sense of sinking, and heavy lunches to satisfy the morbid craving, which they only silence for a little. Some, of course, suffer in a greater, and others in a less

degree, according to peculiarities of constitution, mode of life, and extent of indulgence; but daily experience will testify that, in its main features, the foregoing description is not over-charged, and that victims to such dietetic errors are to be met with in every class of society.

LABOR AND LONG LIFE.

It is rather paradoxical, but nevertheless true, that labor which was imposed on man as a curse, has become a blessing. However it might become mankind, in a state of sinless perfection, to be exempt from the duty of eating his bread in the sweat of his brow, it does not become him, in his sinful imperfect state. Physiologically, idleness is as injurious as sickness; it is an abnormal condition. The body was not made to be idle; it is not idle itself, the heart never rests; the ventricles never cease from their systole and diastole; the skin never ceases to throw off the waste matter brought to the surface; the brain never ceases to think; all those involuntary functions performed by the different organs of the body go on without rest from the cradle to the grave; and this mysterious and instructive phenomena of life teaches as plainly as any lesson can teach that regular, systematical labor is best for man. Dr. Guy, an Englishman, in calculating the average duration of life of the wealthy classes, arrived at the very surprising result, with regard to adults, that the higher their position in the social scale, the more unlimited their means, the less also the probability of long life. We have been so long accustomed to consider the possession of riches as the best

guarantee for physical welfare, that many will be surprised to hear from Dr. Guy that "the probability of the duration of life lessens, with regard to the adults in each class of the population, in the same degree as the beneficial impulse for occupation is lacking. If a person, who for a long time has lived an active life, retires from business, it may be taken for granted, with a probability of ten to one, that he has seized the most effective means to shorten his life." But labor is not merely a positive good, of itself; it is a prophylactic against the dangers that constantly menace a life of idleness. The Evil One, we are told, "finds some mischief still for idle hands to do." The fact is, such a thing as absolute inactivity is impossible; men will do something, and if they have no regular and systematic employment, they are pretty sure to abandon themselves to dissipation and profligacy, or allow their power to dwindle and decay in aimless and useless frivolity.

We may smile at the soap-maker who, after having formally retired from business, went, nevertheless, on each day of soap-boiling to his workshop; but it must also be acknowledged that his instinct did not mislead him. Of all conditions of life, idleness is hardest for nature to combat; and this is especially true of persons who have accustomed themselves to a busy life.

It is the law of God that no human being can have a sound, vigorous body, accomplish much physically, and enjoy long life, without *good muscles*. Though there is a variety of ways by which exercise may be obtained, yet domestic labor is best adapted to develop and strengthen the whole system. Within a few years much interest has been awakened upon the subject of physical exercise, particularly as connected with schools and seminaries of

learning. Besides the out-door exercises and games, calisthenics and gymnastics have been introduced inside the school-room, and are becoming a part of the regular exercises in many institutions. This is an improvement in the right direction—and is good as far as it goes—but is entirely inadequate to meet fully the demands of nature. No kind of exercise for girls is so well calculated as household work to develop *all the muscles* of the body—to do it in early life, and gradually, under circumstances favorable to health generally. The girl and young woman must thus be trained year after year, otherwise she will never obtain that hardihood of constitution, that strength of muscle, that power of endurance; or, in other words, that balance of temperament so essential to good health and happiness in all the social and domestic relations of life.

In view of the short duration of life entailed by some occupations, it must be regarded as a consoling, yea, a sublime fact, that labor in general does not tend to shorten life; but, on the contrary, by strengthening health, lengthens life; while, on the other hand, idleness and luxury are productive of the same results as the most unhealthy occupations.

That man is on the safe side pecuniarily who spends a little less than his income, and so with the man who does not do quite as much work as he has strength for.

A man who has strength to do twelve honest hours of labor in twenty-four and no more, should do but nine or ten hours' work. The reserve power keeps the body in good repair. It rounds out the frame to full proportions. It keeps the mind cheerful, hopeful, happy. The person with no reserve force is always incapable of taking any more responsibility than he already has. A little

extra exertion puts him out of breath. He cannot increase his work for an hour without danger of an explosion. Such are generally pale, dyspeptic, bloodless, nervous, irritable, despondent, gloomy—we all pity them. The great source of power in the individual is the blood. It runs the machinery of life, and upon it depends our health and strength.

Looking at the matter solely from a selfish and pecuniary point of view, it appears that the requirement of the greatest number of hours is sometimes equally to the disadvantage of employer and employed. There are classes of work of which more can be performed in eight hours than in ten, especially work requiring great physical exertion. An instance of this was lately afforded in the construction of a railroad bridge in Missouri. There the manager of the work, wishing to compare the merits of the eight and ten hour systems, adopted each in succession, and it was found that by the first plan much more work was performed. The character of the labor was physically exhausting in the extreme, and when the men were required to work ten hours a day, they moved slowly and sluggishly, the rest of a night not sufficing to recover from the long continued exertion; but when only eight hours were exacted, they had ample time to rest, and worked earnestly, being fully equal to the quick, heavy labor required of them. On the contrary, in many kinds of work of a less exhausting nature, there is no doubt that ten hours of labor would be no more than could be performed with ease by either sex.

No general rule can therefore be given to determine the hours which may be said to constitute a working day, but could some limit be fixed, varying with the different conditions under which work is performed and intended

to be a guide rather than a law, something would doubtless be achieved towards solving a problem which is puzzling alike to employer and employed.

ON WORK, HEAT AND HEALTH.

Workers in the fields—strong men and sturdy boys, toiling beneath a blazing sun, and exposed to rain and chill—let us have a talk together about work and health.

There is a good deal of work to be done that cannot be got round, or pushed aside, unless you like sheriffs and red flags. If the old farm is to be kept, and to gain in value, this work ahead must be met and done up.

It may be well to "take an account of stock," as merchants say, we mean stock of bone and muscle, and nerve, and will-power. Every sensible man knows about what he can do, and not break or weaken his powers; settle that, and then *do not over-do*. Many a man (and more boys) just wrecks himself needlessly in ten minutes, and is never the man again he was before. When you feel you are up to your highest mark, *stop*; and stop before you get there, save in rare emergencies. It is well to feel that you have a reserve force, and could "let out another link."

Look out for the sun. He is a fiery fellow, and sometime when your system may lack positiveness from overwork, he will send a hot shaft right through you. Do not be careless or foolhardy. The "boys in blue" all say that the best soldiers took no useless risks, and were therefore fresh and right when the sharp work was to be done.

If you have a feeling come over you that the heat is

going through you, take to the shade without any foolish shame, for the hardiest sometimes falter, and far better one hour's care than months or years of weakness from sun-stroke. Keep a firm will, for that has great power over the body, and keep the system in a positive condition, with an overplus of vital force to meet and master heat, or cold, or work, by rational care in your habits: but, when you feel that the vital forces are too weak, or too much taxed, yield for the moment and recuperate.

Do not drink too much, no matter what it is, but rather a little, often, and slow, rinsing the mouth well. Be careful about ice-water. Some ginger and sugar or molasses is good in your water. Home-brewed ale of the best sort may help. As for spirits, it is too fiery, in whatever shape, gets up too much fever, too high pressure.

Beware of getting hot and tired and standing in a chill draft of air, especially if it comes on your back. That heat and work has lessened your vitality, and put you in a negative condition, so that outer forces control you easier, perspiration is checked and sad mischief done before you think. Keep your face to the wind when you stop to rest, for the resistant vital forces emanate from the front more than the rear, and he is as wise as well as a brave man who faces exposures as well as danger.

Do not bolt a hearty meal in hot haste and rush out to your work, but get a little rested, then eat moderately, yet enough, and go to work fresh. Dyspepsia and its kindred horrors come often from eating full meals with the system overtaxed and heated, and no vital power left for digestion. Keep cool; the more to be done the more need of self-possession, that you may be master of the situation.

Do not eat heaps of meat and drink gallons of rank

coffee and strong tea with a blind notion that you must have hearty food. Your bread or beans, pound for pound, has more nutriment than your beef, and the water does not clog up the system like this black coffee, or rack the nerves like strong tea.

Meat has more stimulus than bread, and a share of this is well, but not in excess. Eat meat, vegetables, fruits, &c., and drink moderately. Keep the system open and all evacuations easy and natural, and save fevers and congestions. Take less meat in very hot weather. Judge for yourselves, but keep all firm, and trim, and cool, and open, in the internal department, and you will be fit for a good, long pull.

Bathe often, *but never when hot or tired*. At night a hand-bath all over, if not too tired, and in the morning you are fresh, and it is always safe. It helps greatly through the heated season.

All this, and much more in the same way that you will all think of, can be done, and avoided, sensibly, quietly, and without fidgeting, and, rely upon it, will help through all the exposure, and make work a welcome task.

The truth is, many of our ailments, and those of a most fatal form, are taken in the house, and not out of doors; taken by removing parts of clothing too soon after coming into the house, or laying down on a bed or sofa when in a tired or an exhausted condition, from having engaged too vigorously in domestic employment. Many a pie has cost an industrious man a hundred dollars. A human life has many a time paid for an apple dumpling. When our wives get to work they become so interested in it they find themselves in an utterly exhausted condition; their ambition to complete a thing, to do some work well, sustains them till it is completed.

The mental and physical condition is one of exhaustion, when a breath of air will give a cold, to settle in the joints to wake up next day with inflammatory rheumatism, or with a feeling of stiffness or soreness, as if they had been pounded in a bag; or a sore throat to worry and trouble them for months, or lung fever to put them in the grave in less than a week.

Our wives should work by the day, if they must work at all, and not by the job; it is more economical in the end to see how little work they can do in an hour, instead of how much. It is slow, steady, continuous labor which brings health and strength, and a good digestion. Fitful labor is ruinous to all.

The old fable of the giant Antæus renewing his strength at every contact with mother earth, shows what the Greeks thought. Of all the means which can be used to give strength, tone, power and intrinsic force to the physical organization of the human being, working the soil is the best. It is better than mechanics; better than gymnastics; better than travel, though it be on foot; better than riding on horseback, or going to sea, or drinking the waters of medicinal springs. True, women are to be found in great numbers who are so sick as not to be able to dig the earth. These must avail themselves of other forms of labor in the open air. But where no special disease exists, but only want of constitutional force, of muscular power, as is the case with many women and grown up girls in this country, digging in the earth is the eminent remedy. However weak and ineffectual their first effort might be, time and steady application would do wonders for them. Their bones would become solid, muscles wiry, tendons elastic, skin clear, blood flowing freely from centre to extremity,

brain vigorous, thought practical, habits simple, moral sense acute.

Mr. Greeley's Cabbage Garden may not have been a bad investment after all, even though that attractive vegetable was raised, as he tells us, at an expense of thirteen dollars a head. Digging in the dirt, seems to be almost a specific for an over-wrought brain.

BRAIN WORK.

The question whether severe exercise of the mind in study or literary labor is injurious or beneficial to the health is one of great interest, especially to parents and teachers. The subject is carefully examined by an English medical writer, Doctor Elan, in a recent work, entitled "A Physician's Problems." The conclusion to which he arrives is that, in the case of a grown person, the more the mind is exercised, either in study, composition, or professional labor, the better it will be, in ordinary cases, for the general health, provided that due physical exercise is taken, and that proper diet and hours of sleep are observed. With these precautions, it is hardly possible to exert the mind too much. The number of distinguished scholars, authors, lawyers, natural philosophers, and divines who have attained great age, while devoting themselves to great mental toil almost till their last hour, is remarkable. It includes, indeed, most of the very eminent names in all those classes.

But with children the case is very different. There is an unanimous consent of the authorities in declaring that hard brain work is likely to be injurious to young persons. The explanation of the difference is simple and

intelligible. All mental excitation induces an increased flow of blood to the brain. In persons of mature age, whose tissues are thoroughly formed and firmly set, the blood-vessels of the brain are strong enough to withstand this increased flow, and, in fact, the brain is benefitted by it. But in children the feeble tissues may give way before any unusual and long continued influx. If an actual "lesion" or rupture of them does not take place, the vessels or cavities may be permanently distended and overloaded. The result is that the mental faculties and bodily health are both injured. The bright, cheerful active child becomes a dull, moping invalid, and often rushes into an early grave.

These suggestions are certainly important, and well deserve the consideration of all whose duties bring them in connection with the training of the young. They may also serve to relieve the anxiety of persons who may fancy that they themselves, or some of their grown-up friends, are overtasking themselves with mental labor. According to the evidences which are cited, this would seem to be a result little to be feared. Any bad symptoms which are observed in such cases are to be ascribed, not to undue strain of the mental faculties, but to neglect of the just demands of the body. Let these be attended to, say the authorities, and then the more the mind is exercised, the greater is the likelihood of good health and long life.

The common opinion that excessive mental occupation gravitates towards insanity is not only not verified by facts, but, on the contrary, one of the foremost of living physicians doubts whether alienation of mind is ever the result of overstrain; it is to physical, not mental derangement, he thinks, that excessive work of the brain gener-

ally gives rise. Insanity, he points out, finds the most suitable material for its development among the cloddish, uneducated classes, while the worst forms of physical diseases are originated and intensified by the educated, overstraining brain workers.

Hard study does not of itself shorten life, but does of itself tend to increase the longevity of man. When hard students die early, it will be found that in some way they had fallen into the habit of violating some of the laws of nature, or began study with some inherited infirmity. The pursuit of truth is pleasurable; it is exalting, and promotes serenity. Of all men natural philosophers average the longest lives. The great, the governing reason is, in addition to the above, that their attention is drawn away from the indulgence of animal appetites; their gratifications are not in that direction, hence they are neither gourmands, drunkards, nor licentious. Sir Isaac Newton had always to be reminded that his dinner was waiting; the call to eat is often a most unwelcome one to literary men; they consider eating a secondary matter; they literally eat to live, and the process of dining is often gone through with as a task. Many hard students have become miserable dyspeptics and have died while yet in their prime; but the tormenting disease was brought on by over-eating, by eating too fast, or by returning to their studies too soon after a hearty or a hasty meal, thus drawing to the brain the nervous energy which ought to have been expended on the stomach in aiding it to prepare the food for nourishing the system, and, not being so prepared, it "lays heavy," feels like a load, or induces other discomforts which increase in intensity and duration, until life becomes a burden and a failure.

Nearly all the cases of sickness or exhaustion from excessive mental labor that we read about, are really the effect of overloaded stomachs. Working the brain ever so moderately on a stomach gorged with indigestible food may result in dyspepsia, paralysis, or consumption; and the same might happen if the brain were not worked at all. But, if the stomach is properly fed and the bowels duly attended to, no amount of study or of head work that any human being can perform between sunrise and sunset will occasion the least injury to the brain.

It is the commonly received notion that hard study is the unhealthy element of a college life; but from the tables of Harvard University, collected by Prof. Pierce from the last triennial catalogue, it is clearly demonstrated that the excess of death for the first ten years after graduation is found in that portion of each class of inferior scholarship. Every one who has seen the curriculum knows that where *Æschylus* and political economy injure one, late hours and rum punches use up a dozen, and that their two little fingers are heavier than the lions of Euclid. Dissipation is a sure destroyer, and every young man who follows it is as the early flower exposed to untimely frost. Those who have been inveigled in the path of vice are named Legion. A few hours' sleep each night, high living, and plenty of 'smashes,' make war upon every function of the body—the brain, the heart, the lungs, the liver, the spine, the limbs, the bones, the flesh, every part and faculty overtasked and weakened by the terrific energy of passion loosened from restraint, until, like a dilapidated mansion, the "earthly house of this tabernacle" falls into ruinous decay.

Because brain work promotes the consumption of nutrition quite as much as bodily labor, a hardy student

will get ravenously hungry. The thing which keeps a man in health is the constant renewal of the particles of his body; labor uses up the new particles of nutriment, and works off the old ones; eating supplies new ones in their stead, and in this way the body is always kept new and young, and vigorous and thrifty. If a man does not work at all, sits still for a great part of his time, the old worn-out particles of the system remain in it, and clog it up, and before long the body becomes torpid and the mind dull, in time approaching to idiocy. The brain, like the body, appropriates the nutriment of food to its uses, and works off the old, effete matter. Kant, one of the most profound thinkers of his generation, living beyond three-score and ten, gave it as the result of his observation that "intellectual pursuits tend to prolong life;" and President Humphrey, of Amherst College, said, at the age of eighty-two, "I have yet to see the man who died from the effects of hard study." Newton, the greatest thinker of his time, lived to the age of seventy-three; and Herschel, the greatest astronomer of his age, lived beyond ninety, and so did Humboldt, the author of "Cosmos." If ever a hard student dies young, it is because he has not lived rightly.

The idea is often ridiculed by uneducated people, that students, and those whose professions require constant mental exertion, really work as hard as those engaged in manual labor. But from the chemical experiments of Prof. Houghton, of Trinity College, Dublin, it is proved that two hours of severe mental study abstract from the human system as much vital strength as is taken from it by an entire day of mere hand-work. This fact, which seems to rest upon strictly scientific laws, shows that the men who do brain work should be careful, first, not to

overtask themselves by continuous exertion; and secondly, that they should not omit to take physical exertion on a portion of each day, sufficient to restore the equilibrium between the nervous and the muscular system.

There is no kind of employment so exhausting to all man's faculties as steady brain work. No one is in constant need of more recuperation than the individual so employed. It should ever be a study with him how he may husband his energies, and prevent that strain upon his powers which is breaking down so many in professional life. Any means or agencies which will save wear and tear, should be eagerly seized upon. The manual labor of writing is wearisome to the flesh. Journalists, ministers and lawyers often postpone, and then never accomplish intellectual tasks, because they have not the physical pluck to undertake them. The employment of an amanuensis to perform the manual work of writing, while one dictates, is a great saving of energy. Any person who has not tried this plan would be agreeably surprised to find how much assistance it affords. Very often a professional man feels too weary to resume the pen and finish some literary task which is urgent. Then is the time when he should draw back in his easy chair, or strike a comfortable attitude elsewhere, and dictate to an amanuensis. After a little experience, one will find that he can thereby accomplish almost twice as much, and with far less exhaustion. The attention is not divided, as when one writes himself. With nothing to divert the eyes, a person can, if necessary, close them, and closely concentrate the mind on the subject, while the assistant communicates to paper the thoughts which follow.

It has always been a matter of surprise to the public how Parton could write so many magazine and newspaper contributions, and at the same time turn out so many fresh and readable historical volumes. The employment of an amanuensis, together with great industry, explains it. He rarely touches a pen and paper, unless when writing on private matters, but dictates night and day to an assistant. By so doing he is enabled to accomplish a vast amount of work, and, what may appear surprising to some, the manuscript so prepared afterwards undergoes but very few emendations, it being generally sent "hot" to the publisher. The well known editorial head of one of our N. Y. dailies, who is famed in journalistic circles for the immense amount of work he performs, rarely takes a pen into his hand. Having read and reflected upon a subject for a "leader," he calls his amanuensis, and, through him, prepares it for the printer in a very short time, he being stretched out, in the meanwhile, in an easy chair or upon a lounge. Those who think they cannot afford this "luxury," will find, on trial, as has the writer, that it far more than pays for itself.

The most recent medical philosopher, to point out the importance of studying the influence of impressions made through the mind upon the organs of the body, is Dr. Richardson, an eminent English physician. He urges that, at the present day, when the mental powers are so terribly overtasked, this study demands earnest and immediate recognition by the general not less than the psychological physician. The different classes of men who are engaged in labors which call forth the energies of the mind, are described by Dr. Richardson, who divides them into copyists, authors, artists, speculators, professionals and students. He defines the nature

of the work of these respectively, and the diseases to which they are subject as the effect of their labors.

Turning to the diseases in detail, Dr. Richardson places not only paralysis, insanity, epilepsy, intermittent action of the heart, and arterial enervation with symptoms simulating aneurism, but also diabetes and cancer, as diseases directly connected with mental strain in persons who have a hereditary tendency to them.

As relates to insanity itself, the author holds an opinion different from that commonly entertained, in his asserting that work, and even hard work of a mental character, does not of itself bring on the disease, but that by such work the organs of the body which are purely physical are most severely injured. Insanity is, he thinks, a disease growing out of ignorance and mental inactivity; so that, in fact, the sluggish parts of the population are the most determinate producers of insanity, and the educated and most intelligent parts of our population are the producers and propagators of the more serious and fatal of organic diseases.

But in reasoning on the share which undue strain on the brain—the material organ of the mind—has in causing insanity, there is one important distinction to be constantly remembered, viz., that between the faculties purely intellectual on the one side, and the feeling, emotions and passions, which make up the largest portion of the functions of the brain, on the other. More commonly it will be found that insanity is the result of excessive indulgence and contentions in these latter, rather than in a simply severe taxing of the intellect alone.

This belief will be fully borne out by the history of genius in all its varied manifestations. And again, the intellect of a student is often supposed to have become

weakened, if not lost, by too close and continuous labor, when, in fact, the result was chiefly due to the irregular hours, strong drinks, and not seldom tobacco or opium.

After all, however, we must receive, with considerable limitations, the opinion of Dr. Richardson, that insanity is chiefly a disease engendered in ignorance and mental inactivity. If we were to say, often engendered, we should more nearly represent the actual state of things.

Mental anxiety and pecuniary embarrassments, such as loss of property by fire, by failure in business, or by bad debts, and also domestic troubles, disappointed affections, and the loss or the treachery of friends, will frequently cause dyspepsia; too close and too active intellectual labor is also a frequent cause. Editors, authors, and literary persons often engender dyspepsia in this way.

Much brain labor requires much blood at the brain, and an ever-working intellect uses up so much of both blood and nervous force that there is not enough remaining to do the work of digestion.

On the other hand, deranged digestion is sometimes produced by too little exercise of the brain. Persons are frequently met with who have been in active business life, and, having accumulated enough to satisfy their ambition, have retired from business. Now, although the brains and bodies retire from active life, yet the poor stomachs very often have their tasks increased.

If a man has been for a long time accustomed to eating heartily and working hard, either with body or brain, he had better not relax his working habits without at the same time having a corresponding relaxation in his habit of eating.

“He who will not work neither shall he eat,” is not

only a Bible injunction, but a law of the human constitution, the disobedience of which is often attended with such derangements of digestion, and other bodily infirmities, as to render either property or life of but little value.

The author of "Piccadilly Papers," in *London Society*, says: I know a remarkably able and fertile reviewer who tells me that though over his midnight oil he can lubricate articles with a certain sharpness and force, yet for quietly looking at a subject all round and doing justice to all its belongings, he wanted the quiet morning hours. Lancelot Andrewes says that he is no true scholar who goes out of his house before twelve o'clock. Similarly an editor once told me that though his town contributors sent him the brightest papers, he always detected a peculiar mellowness and finish about the men who wrote in the country. I knew an important crown official whose hours were from ten to three. He had to sign his name to papers; and as a great deal depended upon his signature he was very cautious and chary how he gave it. After three o'clock struck, no beseeching powers of suitors or solicitors could induce him to do a stroke of work. He would not contaminate the quality of his work by doing too much of it. He would not impair his rest by continuing his work. And so he fulfilled the duties of his office for exactly fifty years before he retired on full pay from the service of his country. And when impatient people blame lawyers for being slow and offices for closing punctually, and shops for shutting early, and, generally speaking, the wider adaptation of our day to periods of holidays and rest, they should recollect that these things are the lessons of experience and the philosophy of society and life.

Keen intellects always ascend to the mastery over dull ones. The picture following is not an overdrawn statement of the achievements possible to a well disciplined mind. A man's great power in the natural world among nature's forces, water, steam, and lightning, is not in his muscles, but in his brain. Any horse can pull harder, lift more, and endure longer than the most perfectly developed man. But a single human brain can control a nation of horses. It is for us, then, to look out for this. If we would share not only what has given Napoleons, Cæsars and Alexanders their power, but the great conquerors of natural forces as well—the Fultons and the Morses—let us look out for the brain, see that late suppers and indigestion do not rob it of vitality, that alcohol does not harden it, nor want of sleep goad it on to insanity; but moral, honest living may render it of utility to the world.

If a man only takes enough sleep and exercise, he can work his brains as hard as he wants to.

A warning to literary men against overwork is afforded in the remarkable statement of Mr. Greeley to Rev. Mr. Talmage, ten days before his nomination at Cincinnati, "that he had not had a sound sleep in fifteen years."

THE HEALTH AND LONGEVITY OF BRAIN-WORKERS.

Dr. G. M. Beard, in Harper's Monthly, presents some curious statistics with regard to the physical effects of intellectual labor, showing that constant activity of mind forms the most favorable condition for the attainment of

old age. It is true that many whose names shine brightest in the galaxy of the world's thinkers walked all their lives in sorrow and pain, and sunk into premature graves. But, on the other hand, it is just as true that the logical cause of the suffering and early decease of these men is to be found, in many instances, not in their intellectual activity as authors so much as in their native feebleness of constitution, in their dissipated habits, or in their external circumstances. Many delicate, finely-strung natures are irresistibly impelled to authorship by the force of their genius, and, if such are doomed to a life-long battle with disease, surely their calling should not be held responsible for their misfortunes. Some worry themselves to death, others hasten it by over-indulgence of the passions, and others die simply because nature does not allow them sufficient capital to sustain life; but very few die simply from over-exertion of the mind.

Contemplate what wonders of toil as well as of suffering have been endured by many authors who have yet attained a good old age. Sir Walter Scott, overwhelmed with debt, lonely through bereavement, persistently writing and planing until he was past sixty; Dante, fighting with poverty and his own weaknesses, plunging into all mysteries and sciences for threescore and ten years; Edwards, establishing a reputation as a theologian and philosopher that shall stand forever, while he was obliged to measure out a plain food according to the caprices of his delicate stomach; Irving, working at his desk for twelve and even fifteen hours a day, rising often at midnight to resume his task, and yet not compelled to lay aside his pen until he was seventy-six. Besides these, scores of names are at once suggested of men of genius

and letters who have struggled with poverty and various forms of ill, and yet have thought on and written until past the allotted term of human life.

College students are referred to as affording examples of vigorous and bounding health, not inferior to that of any other body of young men in the country. Intelligent farmers form an important class of brain-workers, and it is generally known that they reach a high average of longevity. "But this green old age is not due to their muscular exercise alone, for mechanics and laborers, who work even harder than farmers, do not live as long by many years; it is not due to the pure air they breathe, for many out of door laborers are much lower in the scale of longevity than they; nor, lastly, is it due to the calmness of rural life, for the farmer, if free-holder, is burdened with grave responsibilities and oppressed by weightier cares than the butcher in the market, the teamster on the highway, or the workman he employs by the day, all of whom die much younger than he. Farmers are long-lived not only because of pure air, moderate exercise, and country quiet, but more especially because they can counteract the injurious effects of merely physical labor by varied activity of the mind. Of nearly twenty thousand of this class who died in Massachusetts, the average was over sixty."

In our large cities also the best physical development is found in the most highly favored classes as regards material prosperity, and whose habitual pursuits demand constant activity of mind. Merchants and manufacturers live longer than artisans and laborers, but not so long as professional men. Reasoning from analogy and from the facts of biography, it would seem that those who are endowed with unusual intellectual powers can work harder

and longer, all things being equal, than the rank and file of humanity.

The Paris correspondent of one of our New York papers, a few year since wrote as follows:

“I notice that most of the talented men of France reach a very respectable age. Look, for instance, at some of the men of the Academie Francaise. M. Viennet, although eighty-nine years of age, is yet in the full enjoyment of his intellectual faculties. M. de Segur, at eighty-six, is as alive to all that is going forward as he was thirty years ago; De Pongerville, seventy-six, completed the other day the revision of his fine translation of “*Lucretia*,” the fourth edition of which has just appeared; Lebrun, at eighty-two, is as hale as ever; Villemain, the father of the Academy, whose election took place in 1821, is seventy-six; every now and then we hear of his being seriously ill, but for all that, he has not the most remote idea of either vacating his *fauteuil* or of giving up his functions of perpetual secretary, which he fulfills with the most assiduous punctuality. Lamartine is seventy-six, yet his step is elastic, and he holds himself as upright as when he saved the country from Red Republicanism in 1848. Flourens, seventy-eight, has been ill for ten years, yet attends regularly. Count Charles de Montalembert, and Ponsard the popular poet—although both ill—are still in the full possession of their brilliant faculties. M. Guizot, seventy-nine, and M. Thiers, sixty-nine, still represent the July monarchy with all their wonted vigor, and each of these veteran Orleanist statesmen enjoy robust health. Berryer, seventy-four, the stanch Legitimist, is as bright and active as any man of half his age; Victor Cousin, the delightful biographer of the celebrated women of Louis XIV’s time, although

suffering from chest disease, preserves his health by an annual visit to Cannes during the winter. The Duke de Broglie, eighty-two, son-in-law to Madame de Stael, is still as polished and strong as though he were made of steel." Some of these are now deceased.

But the truth is that men in these days never know when to stop. The richer they grow the more earnestly they labor; the desire and thirst for profit, the excitements of competition, the intensity of the spirit of speculation which pervades every walk of life; these things all hasten the mind and body to that point where the strength of nature fails, and the man, if he does not die instantly, lingers along with paralyzed limbs and weakened intellect for the remainder of his life.

All men have more or less of the cares and anxieties peculiar to human life. That there is a skeleton in every household is proverbial; and no man can long survive a struggle with a nature who, in addition to the ordinary cares of life, assumes a load of responsibility beyond all mortal strength, and with overburdened brain and fevered body, ventures to battle through the world. There is a limit to the power of giants. The burdens which a man may carry when taken separately and at intervals, and be but the stronger for the labor, if all pressed upon the brain at once, must produce exhaustion of body and mind.

Mental work, or brain-work, is not injurious to health, nor does it shorten life when kept under proper hygienic regulations. We have held, in all we have said against excessive study in schools, or by thinkers out of schools, that mental effort is conducive to health and longevity, when properly mingled with labor and recreation.

Any pupil in school, or any man or woman out of

school, who labors more than four or five hours a day at hard study without recreation or relaxation, will find it injurious to health, and to shorten life. But the hardest student may live to extreme old age if he will observe the following rules, of which this is the first—mingle labor with recreation.

Never study or apply the mind closely immediately after eating. There is but so much blood in the body, and when the stomach is digesting food, a larger proportion of it is there than at other times. So, when we think hard or study, more blood flows to the brain than at any other time. But who does not see that there cannot be more blood than usual at all parts of the body at the same time?

To be healthy, never study under the influence of stimulants. Many have written and produced wonderful compositions under the stimulus of alcohol and opium, and other poisonous narcotics. But such a course invariably shortens life. Men may study if they will only live right.

RECREATION.

If there is anything that cannot be dictated to any man, it is his recreation. In the very nature of things it must run through every degree of difference in different men, even to oppositions. To a student, it might be fun to spend a week or two on a farm at haying or plowing; but to invite a farmer to a plowing bout on a neighbor's farm would be offering but a poor inducement. A lawyer might enjoy an hour or two a day in a work-shop; but to open its doors to a mechanic as an amusement would not be likely to cheer his spirits. To ask a clerk,

sitting over a desk ten hours a day, to an evening walk, is to hold out an agreeable idea. But it would be mockery to invite a letter-carrier, who had raced all day long from street to street, to a little recreation by a few miles' walk at evening. Change and variety is what one needs. A school teacher would be likely to get away from children in vacation. A New York merchant would seek to get out of hearing of the markets. Every sensible man wishes to let that part of his nature which he uses to weariness, rest; and seeks to bring up into activity those which are relatively dormant.

We think that Americans do not vividly enough realize the importance of laying aside business at least once every year, of getting a change of air and scene, and of taking one good, long, serene rest. This lack of appreciation for an annual vacation is probably less observable in New York, Boston and Philadelphia; but in the smaller towns of the East, and in all the towns of the West, the custom of making all business arrangements with this in view is by no means common. Every clerk ought to have it put into the bargain that he shall have a vacation every year. Every principal should have it understood with his partner that each is to enjoy the same treat. All commercial and professional calculations should contemplate this as a necessity.

We often meet men who appear to take pride in saying that they have toiled so many years without cessation or change. It is a poor pride, and frequently a fatal one. With this American vanity in perpetual labor is connected no small amount of our American tendency to the madhouse and the grave. It is a fine thing to see a Yankee giant rushing onward year by year, toiling terribly, scorning the weakness of a holiday; but it is

not so fine to see him, after a few years of such existence, sinking under softening of the brain. Yet this is the mournful story of many a life.

The great workers, who have held out in the race of life, have been great resters too. They understand these things in the old country. They have got over the juvenile folly of forgetting that the human machine needs occasionally to rest and cool, and undergo repairs. In England, for instance, their busy men invariably go into the country, or go to sea every summer. John Bright would not be alive now if it had not been for the death of so many trout. So, in that country, they are accustomed to Prime Ministers who are vigorous and virile at eighty, and to philosophers of almost a century.

There is wisdom as well as benignity in the tender blessing which old Isaac Walton asks on "all that are lovers of virtue, and dare trust in the Lord's Providence, and go a-angling." Persons who can be so described scarcely need to have the blessing asked for them; they carry the blessing around with them.

Good friends! are you, amid the anxieties and ambitions of business, tempted to forego a few weeks of repose this year? We implore you to beware. This is bad economy. What you want for success is tone. Eleven months of high toned health are worth far more than twelve months without it. Do you say you can't afford to take a vacation this year? We reply: you can't afford to omit it.

We hope that none of our readers will think we are deficient in respect for them, but we feel compelled to tell them, as an expression of our sincere good wishes, to go to grass.

Most men and women must keep in the traces, and keep pulling, the year round. All the more, therefore, is it their duty to take things easier as the hot weather comes on. Take longer rests at noon. Put on less steam when you *are* at work. Snatch a Sunday now and then from the middle of the week.

You can't? You can. People find time to be sick and die; they can just as easily find time to rest and keep well. Everything does *not* depend on finishing that dress, or fencing that field, or "putting up" so much fruit, or catching so many customers. Better that the children should wear old clothes than that their mother should be laid aside by a fever. Better that the corn crop should be a little lighter, than that there be no one to harvest it. Let us have shorter sermons and fewer of them on Sunday; longer recesses for the children at school on week days; put up the store-shutters earlier at night; prepare plainer meals in the kitchen; take a noon-day nap yourself, and give your employees a chance to go a-fishing of an afternoon, now and then. That only is a *duty* which the Lord lays upon us, and He is not so hard a Master as we sometimes suppose.

No one should work or study hard within half-an-hour of a regular meal.

The time for profitable and efficient study is in the early part of the day, certainly before noon, because sleep is the rest of the brain; and while it is thus resting, nature is depositing new particles upon which it is to feed the next day. To engage in severe study in the after-part of the day leads to an injurious exhaustion, over-straining of the brain, and is as unwise as for a man to engage in hard work at sundown, when the strength of the body has already been used up in the ordinary

occupations. The best time for recreation, as to body or brain, is the after-part of the day, when the main business of life has been attended to ; thus resting the working faculties, while exercising those which have been idle ; thus giving occupation each day for the whole man.

THE NECESSITY OF TAKING REST.

“Nature benignantly indicates the time to pause ; but man, stiff-necked and presumptuous, too often disregards these warnings, and, instead of ceasing to work, works badly, against the grain. Then, again, as to voluntary cessation from labor, there are conditions to be observed with respect to the perfect realization of the idea of a holiday, which some men, by reason partly of their natural dispositions, partly of their adventitious surroundings, can rarely fulfil. The nominal holiday often brings with it anything but genuine rest. Too frequently a man's business pursues him into the country, haunts him at the sea-side, sits upon his back wheresoever he goes. ‘This is his own fault,’ it may be said. Nay, rather his misfortune. It is the result, commonly, of a conscientious feeling, that what a man can do he ought to do with all the power that is in him ; and that he has no right, for the sake of personal ease and enjoyment, to lose sight of his appointed work, unless he be perfectly assured in his own mind that it can be done equally well by others in his absence.”

The obligations of duty to one's business should not be persistently obeyed to the sacrifice of one's health. Whatever may be the nature of a man's feelings on the subject, he should remember that he owes the first con-

sideration to himself. There is not only a necessity for his taking rest, but it is his duty—imperative duty—that his life may be prolonged. We have had many examples in illustration of this idea. Men who, with a constant devotion to their business pursuits, cut themselves off from relaxation and enjoyment of rest are committing a suicidal act. In an unexpected moment, the thread of life, which has been subject to long and utmost tension, snaps suddenly, and the defier of the laws of nature becomes the victim—not of hard work but of a too rigid application. Hard work can be endured, but intervals of rest are the conditions; and these conditions will enforce themselves. Sometimes these periods of rest come in the form of sickness, when the mind and physical powers, worn down by ceaseless activity, utterly refuse to perform their tasks. This the sufferer may regard as a hard dispensation, but, in reality, it is only the interference of Nature to revenge herself for the breaking of her laws, and to apply her genuine restorative—rest.

Business is a tyrant. Men become its slaves. And not only at the desk, in the office, or in the workshop, but at home with their families, in hours that should be passed in sleep, and on the Sabbath—that great day of rest—they occupy their minds in working out plans, or speculating with anxiety as to the result of some business enterprise. Never absent from business during the appointed hours; the cares, the anxieties, the hopes, and the fears with which it is accompanied are always present with them. Is it any wonder that, at last, like the writer whom we have just quoted, they are compelled to succumb? “I have,” he says, “been ordered to halt and stand at ease; I have been compelled to rest, whether I would or not; and however much I have chafed at the

commencement, I have always acknowledged, at last, that the hour has been well spent. For rest is a thing to be *done*, as well as work; and if we are disinclined to do it, we should be thankful that the 'Providence which shapes our ends' sometimes compels us thereto, in spite of ourselves. But for these occasional compulsions, I might, long ere this, have been in a churchyard or a mad-house. At least, I am convinced—and the conviction brings a strong feeling of gratitude in its train—that if I always had my own way, I should not now be writing this essay, enjoying the soft summer air, and the sweet odor of the roses in my garden. What we are wont to call mischances are commonly blessings in disguise. And so I thought that as these small pauses had not been enough for me, it had been beneficently ordained that I should be laid in my bed for six weeks and ordered to take my rest."

Prostrated with sickness, these over-constant businessmen become helpless, and cease to burden themselves with their material cares. And we heartily agree with the writer we have just quoted, that the absence of these distracting thoughts "makes a period of sickness the nearest approach to a period of rest to which man is ever likely to attain, until he has rid himself of all fleshly incumbrances. There is something very comforting in utter helplessness. It is God's will that you should for a while be inactive—and there's an end of it. Satisfied that all comes from the Almighty Disposer of all events is for the best, you resign yourself to his bidding, as a child; and with this childlike confidence come childlike tastes and inclinations, and something like a childlike state of intelligence; the mind, like the body, eschewing strong diet and delighting in the mildest nutriment."

A month or two months' vacation may be of little avail to a person in regaining and fortifying his health, if he carries his business with him. He does not fulfil the conditions of health unless his vacation affords him a perfect freedom from all matters which agitate or disturb the mind.

That man who is regular at his business, who never fails to take proper intervals of rest, in which he shuts out everything pertaining to his business life, will accomplish more, without the sacrifice of health and life, than he who takes no intermission from his labors. The danger is not that we shall take too much relaxation, but that we shall not exercise proper discretion in governing our labors by our capacity and need of rest.

Rest is the grand purpose for which the Sabbath was ordained, and nights that bring refreshing slumber, and rest is the state to which we all look forward with longing. As our author very beautifully says:

"There is something very soothing and solacing, amidst the cares and distractions, the ceaseless goings to-and-fro of active life, in the thought of some day being able to lay down one's burdens and cease from the strenuous business to which one has been harnessed for long years—to make over the traces and the collar and the reins, which one has worn so long, and the bit one has champed for nearly half a century, to a younger and stronger horse, and to go out quietly to grass. And yet there are some men who shrink from the thought—who have a vague presentment that if the harness ceases to brace them up any longer, they will fall down by the way side and die. Every man should listen to the warnings which benignant Nature is continually uttering to him."

The following felicitous passage occurs in a speech of

Hon. Edward Everett: "The Americans, as a people—at least the professional and mercantile classes—have too little considered the importance of healthful, generous recreation. They have not learned the lesson contained in the very word which teaches that the worn-out man is *recreated*, made over again, by the seasonable relaxation of the strained faculties. The old world learned this lesson years ago, and found out (Herod. I, 173) that as the bow always bent will at last break, so the man, forever on the strain of thought and action, will at last go mad or break down. Thrown upon a new continent—eager to do the work of twenty centuries in two—the Anglo-American population has overworked, and is daily overworking itself. From morning to night—from January to December—brain and hands, eyes and fingers, the powers of the body and the powers of the mind are in spasmodic, merciless activity. There is no lack of a few tasteless and soulless dissipations which are called amusements, but noble athletic sports, manly out-door exercises, are too little cultivated in town or country."

The body is recruited by a change in the form of its exercise; the mind is renovated by sleep, by profound rest; hence, the best way of reinvigorating the whole man, whether of the laborer or of the literateur, is not to go to the springs, or some country house, and lounge, and loiter, and eat, and doze away the tardy hours, but to secure employment which will bring into requisition those muscles of the body which have in a measure been lying dormant, and to keep up that exercise in the open air, day after day, to an extent that the body shall be so fatigued that deep sleep comes within five minutes after the head has reached the pillow, that gives natural rest to the brain, which for the whole day following will thrill

the whole body with the electrical influences which it distributes through it by means of the nervous system; and if this process is repeated day by day, it will not be a week before a new spring will be added to the step, a new fire will sparkle in the eye, a new energy will be infused into the mental faculties, and the whole physical man will be rejuvenated, while heart and soul will respond to the general invigoration.

Mr. Colfax was discharged from medical treatment with the injunction that he spend more time in recreation, which he promised to obey. There are a great many others, in political and business life, who would do well to adopt a similar course. Constant work, involving the exhaustion of the vital forces, with no intervals of rest, can lead to but one result—the decay of health and waste of life. With seasons of recreation scattered here and there through the year, the capacity of the strongest will be increased, while to the weak they will prove a better tonic than all the medicine men can invent. By all means, stop now and then in the hurry of your march to sit under the cool hedges by the way.

A man too busy to take care of his health, is like a mechanic too busy to take care of his tools.

It is not at all wholesome to be in a hurry. Locomotives have moved a mile in a minute for short distances. But locomotives have often come to grief by such rapidity. Multitudes in their haste to get rich are ruined every year. The men who do things maturely, deliberately, are the men who oftenest succeed in life. People who are habitually in a hurry generally have to do things twice over. The tortoise beats the hare at last. Slow men seldom knock their brains out against a post. Foot-races are injurious to health, as are all forms of com-

petitive exercises; steady labor in the field is the best gymnasium in the world. Either labor or exercise carried to exhaustion or prostration, or even to great tiredness, expressed by "fagged out," always does more harm than the previous exercise has done good. All running up stairs, running to catch up with a vehicle or cars, are extremely injurious to every age, and sex, and condition of life. It ought to be the most pressing necessity which should induce a person over fifty to run twenty yards. Those live longest who are deliberate, whose actions are measured, who never embark in any enterprise without "sleeping over it," and who perform all the every-day acts of life with calmness. Quakers are a proverbially calm, quiet people, and Quakers are a thrifty folk, the world over.

The London Sanitary Record, in an interesting article on "Overwork," gives the following graphic picture of the business man who is overtasking his powers: "Sooner or later he finds that his day's work has become an effort, a toil rather than a delight; the last hour has become a strain only maintained by determination; a sense of exhaustion and fatigue envelopes his closure of the day's work, the last columns of figures have presented difficulties hitherto unknown, and the last pile of letters has seemed more trying than of yore. Anything new of an unwonted character, making special demands upon the higher faculties, becomes arduous and distasteful, revealing the fact that the higher powers are first commencing to give way, to announce their inability, while the more routine matters, which have almost become automatic, or even habitual, can still be effectually discharged. But in time even these lower processes are affected, and the last half-hour at the office is a distinct trial, and is fol-

lowed by a sense of exhaustion. There is a certain amount of irritability combined with the sense of exhaustion, that irritability which is ever found along with the exhaustion of nerve matter; this irritation sometimes almost amounting to exaltation, marks the commencement of nervous exhaustion and failure. While work seems to become more irksome, the usual sources of pleasure no longer afford their wonted solace and satisfaction. There is a heightened susceptibility to any little trivial annoyance, domestic matters are felt more keenly, the dinner is not so satisfactory, the children are noisy; the more necessity for rest, and the more distinct the craving for comfort and quiet, the less seems forthcoming. There is an emotional exaltation which reveals the irritability of the exhausted nerve centres; the newspaper is stupid and uninteresting, the piano wants tuning, servants are deteriorating, children are less obedient, and wives less sympathizing than of yore. The mind is as sensitive as is the skin after a blister; the slightest touch produces pain."

Mrs. Stowe expresses the opinion that every human being needs to have one thing in which he takes pleasure for itself alone—not as work, not as duty, but as diversion. In old times the children, strictly schooled and ruled through all the week, had Saturday afternoons when they did their own pleasure, and halcyon hours they were. She adds:

Grown children need something corresponding to this. They need time when they let off the strain of the dreadful must—something which they can do or leave undone at pleasure, but which they do for the pure love of it.

Where poor, dear mother of a great family of boys

and girls, is your little comfortable play grounds? Those noisy, bright, romping, crowding boys and girls, who every one of them press upon you and leave you not a moment to yourself, have they each a favorite little amusement or solace? Tina and Bessie have their dolls and baby houses—Tom and Jack their railroad cars—your daughter her embroidery and music. What have you? Is there a moment anywhere sacred to your own private, peculiar pleasure? What is your Saturday afternoon? What thing do you do purely for the pleasure it gives and not as a duty?

Some mothers have their reading which leads to late hours. When every gay head in the hive is on its pillow and the clock ticks in the still hours, then comes the precious, quiet hour of reading. Blessed soul! who shall forbid it to her, but who does not wish she had been able to take it fresh and unwearied out of her morning hours?

Some mothers have learned in early days pencil craft or artistic skill, and laid it aside in motherly self annihilation. Dear mother, keep this gift for yourself—get out your boxes and colors—sharpen your pencils—sketch—paint—it will do you good; it will rest your nerves; it will brighten your thoughts; it will give spring, elasticity and cheerfulness to your life; and the more you are, the more you will have to give to others.

Every good husband should try to make his wife have some resource of this kind, and every wife should do the same for her husband. Don't infringe on each other's little Saturday afternoon; reverence each other's pet pleasures. Life is not so very long at the best and a bit of pure pleasure is not a thing to be despised.

The three best medicines in the world are warmth, abstinence, and repose.

HOW TO REST.

The best mode of resting when fatigued, depends upon the cause of the fatigue and the condition of the person at the time. There is one thing, however, which will always rest a tired person, and that is a sponge or towel bath over the entire surface of the body, followed by a thorough rubbing and friction of the surface. Of course the temperature of the water and the vigor and amount of the rubbing must be graduated to the strength of the person. It is generally best if given by a second person.

When the fatigue is mental, arising from over exertion of the brain, the muscles should be called into action, as by walking, horse-back riding, rowing, playing ball, pitching quoits, gymnastics, etc.

General muscular fatigue is quickly relieved by lying on the face and having some one rub and percuss the back vigorously. Also, but less readily, by lying flat upon the back upon a hard couch or bed, or upon the floor, with the hands back of or under the head, but the head not otherwise raised, and taking full deep breaths.

Local muscular fatigue may be relieved by rubbing and percussing the part, or by changing position and bringing other parts of the body into action.

After a long spell of hard labor it is often found that a person is too tired to sleep well. These are the occasions when men resort to stimulants, and, after getting the sleep, are worse than ever, the reaction leaving them almost lifeless, and a prey to the first excitement that turns up. Then tobacco, and then alcohol again, till the person is not much more than an apology for a human being. If a man wishes to last a reasonable number of years on this globe, and live in peace and comfort, he

should get rested every day of his life ; and when sleep fails to come at the time when he needs it, he had better let all poisonous stuff alone, and resort to Nature's remedies and helps.

One of these remedies will be found to be water. A tepid bath taken just before going to bed, of such a temperature as shall be agreeable, is a delightful seductive for many persons, preparing them for sleep that is sound and refreshing. It may be used for ten or fifteen minutes, or even longer, if agreeable. It should be taken in a warm room, and such portions of the body as are not in the water, well covered with a blanket. Another remedy, where a person is in position to call in its aid, is a mild current of electricity, continuing from twenty to thirty minutes. The positive pole may be held in one hand, or by means of a sponge placed over the stomach and abdomen, and moved about from point to point, while the negative pole may be placed at the feet. This is one of the best methods of producing a condition favorable to sleep that is known, and after a little study, can be adopted by almost any one. Then there is still another agent, belonging to this latter class, whose power is possessed by many who do not know it, and sometimes, through ignorance, may be abused. This is magnetism, by means of passes over the head or simply holding the hands of the person to be influenced. Still another agent is a very quick showerbath, or a hot foot-bath, or holding the hands, if hot, in cold water ; or, if the hands are cool, holding them in hot water ; or putting a cold, wet compress over the abdomen. The two best remedies, however, are the sitz bath at bedtime and the use of electricity. Whatever is done should be done with judgment and care.

To the hardest worker, says Schuyler Colfax, comes the blessed day of rest, interleaved among the seven days of the week. This, at least, the law allows him to command for his own; and the happy tendency of our times is to give him other hours of rest besides, to enjoy with the loved ones at home. But those who work with the mind, as well as the body, should have even more hours of rest and relaxation with their family, unharrassed by the wearing business toils of life, free from its corroding and cankering cares, and dedicated to happiness and recuperation. Visiting, recently, one of the busiest men in the United States, I found that he had laid down the law of his daily life that, when he turned his back on his office, he left all its thousand details behind him till the morrow; shut out absolutely his multiplied business cares when he closed the door of his dwelling; and there, in the fullness of enjoyment with his family, renewed his youth daily by mingling with the amusements of the household. To such, life has a daily zest never realized by him who carries his business, at home as well as in his counting-room, like a clanking chain always hanging upon his limbs.

A distinguished physician says, without reference at all to the theological question: "Although the night equalizes the circulation well, yet it does not sufficiently restore its balance for the attainment of a long life. Hence, one day in seven, by the bounty of Providence, is thrown in as a day of compensation, to perfect by its repose, the animal system. You may easily determine this question by trying it on beasts of burden. Take the horse and work him the full extent of his power every day of the week, or give him rest one day in seven, and you will soon perceive, by the superior vigor with

which he performs on the other six days, that his rest is necessary to his well-being. Man, possessing a superior nature, is borne along by the very vigor of his mind so that the injury of continued diurnal exertion, and excitement in his animal system is not so apparent as it is in the brute; but in the long run it breaks down more suddenly; it abridges the length of his life and that vigor of his old age, which (as to mere animal power) ought to be the object of his preservation.

A writer on "Ministerial Hygiene," urges upon ministers the duty of rest. One day in seven should be appropriated to this duty. They can not take Sunday, let them take another day, and keep it inviolate. They should sleep well also. The greatest preachers have been great sleepers. It is wicked to borrow from sleep hours for work. Talleyrand would say it is worse than a crime, it is a blunder. You can not use what you do not accumulate. Hours of sleep are hours of accumulation; many a minister sits up half of Saturday night to finish his sermon, and wonders that it falls dead on such dull ears. The reason is that he sat up one-half the night to finish it. He has finished himself as well as his sermon.

An eminent physician on his death-bed comforted his friends who were lamenting the loss of his professional skill to the world, by telling them that he should leave behind him far better physicians than he was; and when they asked him to tell them their names he replied: "Dr. Diet, and Dr. Quiet."

It is well remarked that "The best medicines in the world, more efficient in the cure of diseases than all potencies of the apothecary's shops, are warmth, rest, cleanliness, and pure air. Some persons make it a virtue

to defy disease, 'to keep up' as long as they can move or bend a finger, and they in some cases succeed in braving it through, but in others the powers of life are thereby so completely exhausted that the system has lost all ability to recuperate, and slow and typhoid fevers set in and carry the patient to a premature grave. Whenever walking or work is an effort, a warm bed and a cool room are the very first indispensable steps to a sure and speedy recovery. Instinct leads all beasts and birds to quietude and rest the very moment disease or wounds assail their systems." And the wisdom that God has given to man should teach him the same lesson, and doubtless would, were it not that by constant stimulants and excitants in various forms he keeps himself blinded to his true condition, and rushes madly on; depending on borrowed strength, until capital and credit are alike exhausted, and physical bankruptcy lands its victim in the grave.

No one but a fool would think to repair a machine by running it, or while running it, and yet many men keep the human machinery in such restless motion that nature cannot get a chance to repair it or restore it to its natural state, and then they purchase slops, stimulants, opiates, drugs, and deadly poisons, and think by turning them down their throats to escape the due reward of their unrighteous mode of life. Try "Dr. Diet, and Dr. Quiet."

Dr. Hall assails the idea that men rest by doing nothing. He says the only healthful rest, as long as our physical condition remains as it is, is to be busy. Men of force and industry will everywhere tell you, "It is the hardest thing in the world to do nothing." The true object of rest is recuperation, and that is best

brought about, as to the body, by exercising a different set of muscles; and, as to the brain, by calling into requisition a different set of organs.

In regard to head-work, rest may be too much insisted upon in cases of cerebral exhaustion. What is wanted, generally, even at the beginning, is not that the work should be given up altogether, even for a short time, but that it should be moderated in amount or changed. It is a grave mistake to let the mind lie fallow, even for a short time, not in the particular case under consideration, but in all cases where head symptoms have to be dealt with—in epilepsy, for example, no less than in cerebral exhaustion. Of course, this notion may be carried too far. Undoubtedly harm may be done by pressing the necessity for work too strongly; but practically this danger will prove to be small in comparison with that of letting the mind lie fallow.

The greatest lady *tragedienne* of modern times, Rachel, after an exciting performance, would go home, and although past midnight, would spend an hour or more in the physical effort of removing the furniture of one room into another, and in arranging it, as if it were to remain so for months, as a means of calming the mental excitement, so that she could go to sleep; the philosophy of the matter was that the nervous energy was diverted from the brain, and compelled, in a measure, to pass out of the system through muscular action, while the mental exercise necessary was such as to engage a different portion of the brain altogether, allowing those organs opportunity of quiescence, which had been so lately exercised to an unwonted degree. Our clerical readers know it often happens that Sunday night is the worst night for sleep in the week, especially for those lazy and improvi-

dent and unsystematic "unfortunates" who put off their preparation for the Sabbath until the very last moment, as it were, and hence have to sit up late on Saturday night, and even encroach on the sacred hours of the Sabbath, thus profaning holy time, in the feeling that the end sanctifies the means, or that it is a perfectly legitimate labor, forgetting that it is an unnecessary labor, as it might and ought to have been done in proper work-days. As we were saying, clergymen sometimes cannot get to sleep for hours after preaching at night; let such take a lesson from the above recital, and instead of going to bed as soon as they get home, let them perform some muscular movements, with the end above-named in view; or, if that be not practicable at times, they should divert the current of nervous energy from the organs of the brain which have been unusually exercised, to the consideration of subjects which will employ other organs. This may very well be done by reading a number of short articles on every variety of subject and by various authors. This is very much on the same principle that one set of muscles are rested by the exercise of another set, which allows them to be quiescent.

Retiring from business, says Dio Lewis, common and popular as it is, is a great humbug. No man should retire from business until he retires to his grave. When his faculties become slow and dull from age, he should reduce the number of hours in his daily work—reduce them just as his strength declines; but in no case should he change his occupation or drop it unless disease actually compels him. He may purchase an estate in the country, to which he retires at an early hour in the afternoon, and he may postpone his morning arrival till two or three hours after the younger people have begun, but

he must not quit or make a radical change. We know of nothing more sure to lead to dyspepsia, insanity and suicide than *retiring from business*.

THE ART OF SITTING PROPERLY.

All consumptive people, and all afflicted with spinal deformities, sit habitually crooked, in one or more curves of the body. There was a time in all these when the body had its natural erectness, when there was not the first departure on the road to death.

The make of our chairs, especially that great barbarism the unwieldy and disease engendering rocking chair, favors these diseases, and undoubtedly, in some instances, leads to bodily habits from which originate the ailments just named, to say nothing of piles, fistula and the like. The painful or sore feeling which many are troubled with incessantly for years at the extremity of the backbone, is the result of sitting in such position that it rests upon the seat of the chair at a point several inches forward of the chairback.

A very common position in sitting, especially among men, is with the shoulders against the chair-back, with a space of several inches between the chair-back and the lower portion of the spine, giving the body the shape of a half hoop; it is the instantaneous, instinctive, and almost universal position assumed by any consumptive on sitting down, unless counteracted by an effort of the will; hence parents should regard such a position in their children with apprehension, and should rectify it at once.

The small of the back is the weak or strong point of

every person; it is the center of voluntary motion. Nearly three hundred muscles are directly or indirectly connected with the motions of which the small of the back is the pivotal center. Hence, while those who are strong, and whose muscular systems are well balanced, know nothing of spinal weakness or vertebral contortion, invalids are forever complaining of this part of the body.

One very prominent cause of weak backs and crooked spines is the unhygienic, unanatomical seats and benches of our school houses, churches and halls; nor are the seats and benches provided on steamboats, railroad cars or at stations or ferry houses any better. It is impossible for any person to occupy these seats long without being forced out of shape. And when school children are confined to them for several hours a day for months and years, their backs will inevitably be more or less weakened, with corresponding deformity of body for life.

If we go into private families, even into the palaces of the opulent, we find the same seats made more for show than for use. Girls suffer much more by using such seats than boys, for the reason that boys are taught to run, jump and exercise themselves all over and all through, while girls are expected to keep still and be pretty.

It is certainly one of the strange problems of the nineteenth century that no parent, teacher or mechanic will give any attention to anatomy or physiology in the construction of seats for the human body. Must our chairs and sofas and divans and tete-a-tetes and pews forever be dictated by fashion, and never conformed to nature? Must our tortured bodies forever be compelled to shape themselves to the seats, instead of the seats being adapted to our bodies? Go through all the great

chair factories of the country, and you will not find a single article that is not put together in gross violation of the rules of health or comfort. If some Cooper or Peabody or Stewart or Vanderbilt or Astor would invest a little million of dollars in establishing an immense chair factory "on strictly hygienic principles," he would do more to improve human health, promote longevity and remedy the backache than any medical college in the land.

Those persons engaged in occupations requiring the hands alone to move, while the lower limbs remain motionless, should bear in mind, that without constantly raising the frame to an erect position, and giving a slight exercise to all parts of the body, such a practice will tend to destroy their health. They should, moreover, sit in as erect a position as possible. With seamstresses, there is always more or less stooping of the head and shoulders, tending to retard circulation, respiration, and digestion, and produce curvature of the spine. The head should be thrown back, to give the lungs full play. The frequent long-drawn breath of the seamstress evinces the cramping and confinement of the lungs. Health cannot be expected without free respiration. The life-giving element is in the atmosphere, and without it, in proportionate abundance, must disease intervene. Strength and robustness must come from exercise. Confined attitudes are in violation of correct theories of healthy physical development, and the instincts of nature. Those accustomed to sit writing for hours, day after day, can form some idea of the exhausting nature of the toilsome and ill-paid labor of the poor seamstress.

The habit of lounging, in which a large number of persons indulge, is injurious to health.

An erect bodily attitude is of vastly more importance to health than is easily imagined. Crooked bodily positions maintained for any length of time, are always injurious, whether in the sitting, standing, or lying posture, whether sleeping or walking. To sit with the body leaning forward on the stomach or to one side, with the heel elevated to a level with the head, is not only in bad taste, but exceedingly detrimental to health. It cramps the stomach, presses the vital organs, interrupts the free motion of the chest, and enfeebles the functions of the abdominal and thoracic organs, and, in fact, unbalances the whole muscular system. Many children became humpbacked, or severely round-shouldered by sleeping with the head raised on a high pillow. When a person finds it easier to sit or stand, or walk or sleep, in a crooked position than a straight one, such a person may be sure his muscular system is badly deranged; and the more careful he is to preserve a straight or upright position, and get back to nature again, the better.

Keep straight. Erectitude as regards bodily position, is one of the most important physiological laws. To sit in a crooked manner, with the feet drawn up, or the head leaning against the wall, is a pernicious as well as uncouth habit. In reading and writing young persons are very apt to acquire the habit of crooking the trunk of the body. This constrains the respiratory apparatus, compresses the abdominal viscera, diminishes the breathing capacity; debilitates the muscles of the whole body, and predisposes to dyspepsia and consumption. Always bend and lean on the hip joints; never by crooking the trunk of the body. In sitting, never put the chair out of perpendicularity, but let all of its legs rest firmly on the floor.

Many young children and half-grown girls are afflicted with curvature of the spine, which is produced, the doctors affirm, by requiring them to practice several hours a day on the piano without any support for the backs or feet.

THE ATMOSPHERE.

It surrounds us on all sides, yet we see it not; it presses on us with a load of fifteen pounds to every square inch of surface of our bodies, or from seventy to one hundred tons on us in all, yet we do not so much as feel its weight. Softer than the softest down, more impalpable than the finest gossamer, it leaves the cobweb undisturbed, and scarcely stirs the slightest flower that feeds on the dew it supplies; yet it bears the fleets of nations on its wings around the world, and crushes the most refractory substances beneath its weight. When in motion its force is sufficient to level the most stately forests, with the earth, to raise the waters in the ocean in ridges like mountains, and dash the strongest ships to pieces like toys. But for the atmosphere, sunshine would burst on us and fail us at once, and at once remove us from midnight darkness to the blaze of noon. We should have no twilight to soften and beautify the landscape, no clouds to shade us from the scorching heat, but the bald earth, as it revolved on its axis, would turn its tanned and weakened front to the full and unmitigated rays of the lord of day.

The air is described in a general way as composed of two gases, nitrogen and oxygen, four parts of the former to one of the latter. There is not a proper chemical

union between them, and air is not a compound in this sense. And this renders the constancy of the proportional quantities, four to one, so much the more singular among the mysterious adjustments of nature which make it possible for air-breathing animals to live. We can understand that two substances in chemical combination, as in water, should be found in definite proportions; but what rules the proportions when the mixture of these gases is only mechanical? The nearest analogy is in a watery solution. Water will take up a certain amount of salt and no more—which is called a saturated solution. Oxygen has a peculiar function in promoting the activity of life. It is a stimulant as effective as ether or alcohol. If taken undiluted it will destroy life by overstimulus of the vital action. Nitrogen is inert and serves for dilution; perhaps it is analogous to water and holds, in a sort of saturated solution, just the right quantity of oxygen to promote health. Yet this does not fully answer all the difficulties of the problem, or explain the wonderful fitness, nicety and persistence of an adaptation without which the life of animals would be impossible.

Nothing in the world can live without air. All plants and animals need air, as well as light and food. Deprive them of this, and death is certain. If you wish to test the truth of this assertion, place a plant under a glass jar, and let the jar stand on a wet cloth, laid upon a smooth table. For awhile, the plant will not be affected, for it may obtain plenty of moisture and food from the soil on which it is planted, and sufficient sunlight through the glass under which it stands.

Watch this plant carefully, and you will soon notice that it begins to fade. It grows paler, and more sickly,

and finally dies. It has sunlight, food, drink, and plenty of warmth; but these do not serve to keep it alive. What makes it die? It is smothered. Plants breathe through their leaves. These are their lungs. When the plant has taken from the air in the jar all the nourishment which it contains, it dies for want of breath because it cannot get air, without which it cannot change the food which it gets from the soil into its own substance. So you see that plants cannot live without air.

Animals cannot live without air. If you wish to try the experiment, take a glass, and put some animal under it, and place it on the table in the same way, so that all air is excluded. You may give the animal plenty of food and drink, but it will soon become sick, and will care nothing for either. After awhile, it will die. The animal is smothered in the same way that the plant was. It dies for want of air.

Put a man under a large glass jar, and if you keep him from getting out, he will soon be dead, and no mark will be left about him to show the cause of his death. But you say, we would not kill a man in that way. Yes; people do kill each other in this way, and sometimes kill themselves, too. People kill their children in this way very often. They do not kill them outright, like the man under the glass jar, but they kill them by degrees. Our burying-grounds are filled with the graves of children and young people who were killed in just this way. They were not put into glass jars, but they were put into tight rooms with glass windows, which treatment in time killed them. They live longer in these rooms than under the glass jars, because, through the carelessness of those who made the rooms, a little air does get through the cracks, which keeps them from dying immediately.

In the kitchen, in the parlor, in the school-room, in the churches, and in every place where people congregate under cover, they kill each other, and kill themselves, just as surely, and just as certainly, as you would kill a man by keeping him under a glass jar. They breathe the air over and over again, until the life-giving principle is all taken from it, and its place supplied with deadly poison. Now, as many people spend a large part of their time in-doors, where no arrangement is made for admitting fresh air, it is no wonder that they die. The fire in them goes out with the same certainty that the fire in a stove goes out if all air is excluded from it. We need a constant supply of fresh air to keep our bodies in a healthy condition; and every room in which people live should have an arrangement, by which a constant supply of fresh air is admitted from the outside, while the impure air, which contains poison thrown off from the body, is allowed freely to escape.

There are some very interesting facts brought to light in the analysis made in various localities to determine the quality of the air. Analyses show that the air in open and exposed localities varies in the amount of oxygen, which it contains from 20.4 to 21. The most favorable localities, as on the heaths of Scotland, show the latter; while it is necessary to go underground into a mine to find the former. Well ventilated mines, where it is possible to labor, rarely go below 20. These results are derived from thousands of careful analyses. Cavendish made 500 in the course of his inquiries.

The cursory reader may think that the difference between 21 and 20 and in the per cent. of oxygen in the atmosphere can have but little importance, and is hardly worth inquiry. It is true that the deficiency named is

small when considered in figuring; but when we reflect that while 21 represents the largest amount of oxygen ever found in the best natural atmosphere, a candle goes out at 18.50, and life can barely be sustained for a short time at 17.20, the importance of a small per cent. of difference becomes apparent. Even so small a difference as that between 21, and 20.981 is equal to 190 in a million; and if we place impurity in water at that rate it will amount to 13 grains in a gallon. This amount would be considered enormous, if it consisted of putrifying matter or any organic matter usually found in water.

But we drink only a small quantity of water, and with such a percentage we might be several days in swallowing the whole 13 grains; whereas we take into our lungs from 1500 to 2000 gallons of air each day. Moreover the blood receives such impurities almost entire, very little being filtered out in its passage to the lungs; while the stomach has powers of disinfection and destruction which render very much of the organic impurities in water harmless. But if we take the air found in the pit of a theatre, generally about 20.740, we find the minute analyses becomes a matter of the highest importance.

The senses are bad and inefficient guides to the wholesomeness of air as regards the amount of oxygen and carbonic acid, save when the former is reduced and the latter increased to such an extent that the lungs seem to refuse to expand, and the whole vital action is threatened with paralysis. Rooms badly ventilated, which contain less than 20.7 per cent. oxygen, are very unwholesome, and the necessity of taking into consideration the proportion of oxygen and carbonic acid in the sanitary inspection of factories and works is abundantly evident from the results obtained by Dr. Smith.

Few have failed to observe what vigor and elasticity are imparted to both mind and body by a frosty atmosphere, and what a loss of all these there is in a hot summer day; this is probably owing to the fact that at noon of any clear frosty day in winter, there is ten times as much elasticity in the air as there is at any noon of summer; hence to all invalids, the days most valuable for exercise are those of frosty weather, and those least beneficial are when it is warm or thundery; hence every hour of daylight spent in the open air in frosty weather in some kind of out-door activities, is that much gain to the vitality of the system, imparting vigor to the mind, elasticity to the body, and elevation to the moral feelings and power of the man.

Sea air, as a rule, is beneficial to health. This is shown by the fact that the average life among seamen is larger than among those of most vocations on land. The occupations of the former are such that, were it not for the healthfulness of the air, their lives would probably be shorter than those of the latter. The sea air is appetizing, and bracing to the general system.

Dr. Young says: "A professor in one of the medical schools in San Francisco, in a lecture, describing the case of a young lady, pale, sickly, with headache, nervous, unable to study, in short, 'going into a decline,' said to the students: Now, what shall be done with such a case? Tell her parents to take her out of school, and give her, in place of school-books, a skipping-rope, rolling-hoop, and a pony; to give her plenty of fresh air and sunshine, to give her good wholesome food and a loose-fitting, comfortable dress; tell them that for want of these she is sick, and it is only by them that recovery can be hoped for; that, with these conditions, she will

recover without medical treatment, and that, without them, medicine will be powerless. This you must tell them, though you might as well talk to the wind; they will not heed a word you say. She is a young lady, and will be fashionable, IF SHE DIES FOR IT."

Live out of doors as much as you can. It is the place for a man to be. It is good for the health. A distinguished physician was in the habit of saying. "However bad the air may be out of doors, it is worse in the house." It is good for the temper. People who are always shut up in the house are apt to grow fretful and peevish. They are prone to acquire narrow views of things, and to worry over trials which are not worth considering. It is good for the whole character—for strength, hope, patience and fortitude. It expands and softens one's nature, and makes us more charitable.

Air is a meal of which we are constantly partaking—hence it should always be pure.

Very many persons, especially ladies, have a horror, in winter, of going out-of-doors for fear of taking cold. If it is a little damp, or a little windy, or a little cold, they wait, and wait, meanwhile, weeks and even months pass away, and they never, during the whole time, breathe a single breath of pure air. The result is, they become so enfeebled that their constitutions have no power of resistance; the least thing in the world gives them a cold, even going from one room to another, and before they know it they have a cold all the time, and this is nothing more or less than consumption; whereas, if an opposite practice had been followed of going out for an hour or two every day, regardless of the weather, so it is not actually falling rain, a very different result would have taken place. The truth is, the more a per-

son is out of doors the less easily does he take cold. It is a widely known fact that persons who camp out every night, or sleep under a tree for weeks together, seldom take cold at all.

A man will die for want of air in five minutes, for want of sleep in ten days, for want of water in a week, for want of food, at varying intervals, depending on constitution, habits of life, and the circumstances of the occasion.

Keep out of debt, out of quarrels, out of damp clothes, out of reach of liquors, out of thin clothes, and out of doors all you can in good weather.

THE VALUE OF PURE AIR.

Fresh air by day and night, strong and nourishing food, dry soil on which to live, sunlight, and warm clothing, are the means of saving many lives which would have been hopelessly lost in the preceding generation. If our conjectures are correct, this improvement may be expected to continue, and everybody can help to make it greater. Ventilate the school-rooms, and the workshops, and the stores, and the houses. In cold weather let the air, comfortably and equally warmed, be generously supplied from without in a constantly-flowing current. Let those who can provide it in their homes remember that an open fire, which sends two-thirds of the heat up the chimney, furnishes the best ventilation for a room of moderate size which the ingenuity of man has yet devised, and that the heat escaping by the flue is the price to be paid for it. Let in the sunlight, and never mind the carpets; better they should fade than the

health of the family. When a man proposes to build a dwelling in a swamp, warn him of his danger

The following extract is from a paper on the "Prevention of Disease," read by Dr. George Derby before the Boston Social Science Association: "Fresh air is the great natural disinfectant, antiseptic, and purifier, and not to be compared for a moment with any of artificial contrivance. There is plenty of it in the world, yet disguise the fact as we may, there is no getting over the unwelcome truth that to provide it in abundance in our climate is expensive, since during seven months of the year it must be artificially warmed. To take in air at the average winter temperature of 28 degrees, raise it to 68, and discharge it again from our houses even once in an hour, is a process which cannot be accomplished without paying roundly, yet on no other condition can we reasonably expect health and long life. The best way is to freely admit that it is expensive, but worth the money it costs. If Benjamin Franklin thought that 'a penny saved is a penny earned,' he was also equally sure that 'health is wealth.' Instead of asking ourselves with how little fuel I can warm my house by stopping the flues and the beneficent window-cracks which the carpenters have left, the question should be, how much can I afford to pay for fresh supplies of pure air moderately and equally warmed and distributed without waste. I cannot help believing that the sum of family health and happiness in a generation would be more increased by liberal expenditures for this purpose than for any other."

The reports of the Registrar-General of England disclosed some very startling facts in reference to the slow influences of different states of air in affecting length of life. If any one were to select from among the different

occupations the healthiest men of a nation, he would probably choose the farmers and the butchers. Both are usually stout in frame and ruddy in complexion. Both are actively employed, have plenty of exercise and abundance of food. In one point their circumstances widely differ. The farmer breathes the pure air of the country; the butcher inhales the atmosphere of the shambles and the slaughter-house, tainted with putrefying animal effluvia. The result is an instructive lesson as to the value of pure air. The rate of deaths stated among the farmers, between the ages of 45 and 55, was 11.99 per thousand (annually). The butchers at the same age died at 23.1 per thousand, so that their mortality is about double that of the farmers. These two classes, indeed, occupy nearly the extremes of the table of mortality. The farmer is the healthiest man on the list, while there is but one worse off than the butcher—the innkeeper. Any one who knows how large a proportion of taverns are mere grog-shops, reeking with impurities and environed in filth, will not be surprised that the mortality among this class ascends to 28.34 in the thousand.

Breathe fresh air if you would live long. In New England, farmers, who pass their days out of doors, live to an average age of 64 years. The average age of persons who have in-door occupations at death is, in Massachusetts and Rhode Island: Shoemakers, 43; tailors, 42½; editors, 41; druggists, jewelers, and teachers, from 39 to 40; machinists, 38½; printers, 36½. Fresh air, therefore, almost doubles a man's life, while it more than doubles his capacity for enjoyment.

No wonder the dwellers in towns almost instinctively seek sea air whenever business ties are in any way re-

laxed. The fact is, that citizens are well-nigh poisoned month after month by the bad chemicals poured into the atmosphere by domestic and manufacturing fires; and it is only near the sea that you can breathe the unsophisticated breezes of heaven. Rain water contains the washings of the air through which it falls; test it, and you test the stuff that you take into your lungs. Now when the cloud drops from over the sea are analyzed, they are found to contain nothing but a little common salt, which won't hurt anybody. As you go inland they yield sulphuric acid, in combination with mineral substances.

In ordinary breathing, a man takes into his lungs at one inspiration, about a pint of air. It enters pure, and is returned so destitute of life, that if it were immediately re-breathed, without the admixture of other air, the man would die on the spot. This out-breathed air is loaded with the impurities and wastes of the system, which have been reduced to a vapory and gaseous state, and carried to the lungs by the blood, where an exchange takes place; the pure air imparts its life to the blood, and the blood loads it with its death, to be freighted out of the system which is thus kept in a healthful state.

Pure atmospheric air is composed of nitrogen, oxygen, and a very small proportion of carbonic acid. Air once breathed has lost the chief part of its oxygen, and carbonic acid. Therefore health requires that we breathe the same air only once.

Air is a dish which one feeds on every minute, therefore it always ought to be fresh.

Florence Nightingale states as the five essential points in securing the health of houses: 1. Pure air; 2, pure water; 3, efficient drainage; 4, cleanliness; 5, light.

England gives her prisoners each a thousand cubic feet

of air to breathe; in the class-rooms of our school-houses, in New York, we give our children from 50 to 150 feet each. And the prisoner has ventilation, while the scholar generally has none.

Dr. Breiteng, in Basle, Switzerland, has examined the air of the school-rooms in that city, in order to establish how far the complaints were well-founded, which had been so often expressed with regard to the injurious quality of the air in school-rooms. We give below the results of this investigation for a room of 251.61 cubic meters, about 8,542 cubic feet capacity, and a surface of 10.54 square meters, or about 111 square feet, for doors and windows. During the trial it contained sixty-four children:

Time	Amount of Carbonic Acid.
7:45 A. M., before the beginning of the test.....	2.21 per cent.
8 " at the beginning.....	2.48 "
9 " at the close of the test.....	4.18 "
9 " after pause.....	4.7 "
10 " before pause.....	6.87 "
10 " after pause.....	6.23 "
11 " at the close of the recitation.....	8.11 "
11 " in the empty room.....	7.30 "
1:45 P. M., before the lecture.....	5.30 "
3 " at the beginning of the recitation.....	5.52 "
3 " before pause.....	7.66 "
3 " after pause.....	6.46 "
4 " close of an exercise in singing.....	9.36 "
4 " in the empty room.....	5.72 "

It is to be mentioned that pure air contains only 4-10,000 of carbonic acid, and that an amount of 1 per cent. is generally considered injurious.

An adult needs about ten cubic feet of air as a regular supply for each minute of his existence, and the supply is so abundant that one may claim this amount; yet think of our public assemblies. To what extent do architects

and builders have reference to ventilation in the construction of church edifices, halls, school-houses, etc.?

A small church edifice, forty feet in length by twenty-five feet wide and fifteen high, will contain fifteen thousand cubic feet of air. An audience of about two hundred persons may be seated in such a room. On the supposition that no fresh air is supplied, that amount will last just seven and a half minutes. A larger edifice, eighty feet by twenty feet in height, will contain eighty thousand cubic feet of air. An audience of eight hundred persons can have pure air from the original supply for just ten minutes! It is a very easy matter to make similar calculations regarding larger houses and correspondingly larger audiences.

Our school-rooms are by no means what they should be in this respect. And let it be remembered that the occupants of such rooms are young, at a particularly impressible period when they have special need of all the invigoration at our command. While the bones of the chest are soft and pliable, while they may either become enlarged or contracted, it is a matter of vital importance that the conditions of health and vigor shall be made as favorable as possible.

The New York Lancet offers the following excellent suggestions: "Every house should be thoroughly ventilated the first thing every morning, so as to allow the atmosphere of the previous night to escape. This can be done by first airing one part and then another. By doing this a house also can be more easily warmed. When there are many persons collected in a room care should be observed to keep a few inches of the window open from the top, every one avoiding sitting close to or under it, as, after a time, when there are many collected

together the atmosphere of the room becomes impregnated with their exhalations, and the air is thus rendered impure. By perfect ventilation there is a uniform amount of oxygen maintained, which is the vital part of the atmosphere, and which is necessary to our very existence. Who has not noticed the disagreeable feeling produced on going from the fresh air into a room with many persons, in which the ventilation is imperfect? At night, also, fresh air should be admitted into the room, for it is, if anything, more necessary that there should be a plentiful supply of oxygen. We have often been asked the ridiculous question, if enough air did not come in through the key-hole. Certainly not. That is not fresh air. Make it a rule always to sleep with part of your window open from the top, avoiding its blowing on you. Fresh air never hurt any one, for by it we live. It is the want of it that injures. Persons seem to forget that they spend one-third of their lives in their bedrooms. We frequently see a man building a house bestowing all his attention on the plan of the parlors, while the bedrooms are, to a great extent, and in some instances, entirely neglected. It had better be *vice versa*."

The New York Times, tells an interesting and frightful story about the quality of the air breathed in theaters and other close houses, containing a thousand or more persons. A chemist made an analysis of the air breathed by such persons: He carried into the theater at 10 o'clock at night a bottle of ice placed on a plate, and then collected the vapor which rapidly condensed on the outside of the bottle and flowed down on to the plate. At first the vapor thus collected had the smell, the taste, and, so far as could be determined, every chemical quality belonging to the waters of the most deadly

fever marshes. Under the microscope, this water was at first clear, but soon, that is to say in a week, it was found to be full of animalculæ. A little later on these animalculæ had grown, and the big ones were seen pursuing and devouring the little ones. Still later on, at the end of two months, the water was thick with animalculæ; various forms were seen, and still the work of destruction was going on. At last but three hideous monsters were seen—microscopic monsters, of course, since they were contained in a drop of water—and these were still fighting to see which could devour the other. At the end of three months the water became clear and miasmatic again.

A recent analysis of air, made by the New York Health Board, discloses the following interesting facts: The proportion of carbonic acid gas ranges as high as seven parts in a thousand. When two parts of carbonic acid gas are present in any room there is no feeling of closeness or vicious air, but that is the limit of healthful proportion. One hundred persons would in two hours vitiate one thousand cubic feet of air to the dangerous proportion of one per cent. Every gas jet produces as much carbonic acid gas as five persons. In a public school they found children inhaling an atmosphere in which there were from three to four parts of carbonic acid gas. In the theatres they found the thermometer ranging from 82 to 95 degrees, and the observation was generally made in the centre of the pit. What would it be in the gallery, where the hot air from the whole house came rolling up? An examination of dust found on the cornices of theatres disclosed the fact that it was principally composed of vegetable matter, which, after being consumed by animals and passing from their bodies, was

taken up by the feet of pedestrians and carried into the theatre, where, beyond a doubt, it was to an extent inhaled by the audience.

The Eclectic Medical Journal of Philadelphia, in speaking on this subject, very properly remarks that it is not only necessary that men may have sufficient air to breathe, but it is necessary to provide air for the apartment itself in which they live, as well as for the persons who inhale it. The influence of impure air is not only exercised upon persons through their breathing organs, but the surface of their bodies, their clothes, the walls of the apartment—in short, the free surfaces of everything in contact with the air of the place becomes more and more impure—a harbor of foulness, a means of impregnating every cubic foot of air with poison—unless the whole department has its atmospheric contents continuously changed, so that everything animate and inanimate is freshened by a constant supply of pure air.

The New York Tribune says: “The fearful waste of life, and destruction of vital energy produced by the close and impure atmosphere of our school-rooms, public buildings, cellars, counting-rooms, factories, &c., &c., ought to attract the attention of philanthropists. The subject is shamefully overlooked by our architects and landlords. More deaths occur annually in New York which may be directly traced to bad ventilation, than are produced by all the epidemical diseases combined. The atmosphere of many of the offices and counting-rooms is so poisonous that any one entering them from the fresh air is actually stifled, though unnoticed by the inmates, except by general lassitude, headaches, and incapacity for work.”

Not only man, but the domestic animals suffer from

impure air. We have frequently noticed this in horse-stables. The poor animals, not having a full supply of pure air, gradually sicken, and begin to lose their sight. There is an immense amount of blindness among horses on this account. It does not seem to be understood that a horse needs fresh air quite as much as he needs hay or oats.

Many a good sermon has been spoiled for want of fresh air during its delivery. The preacher has felt heavy and the people drowsy; the one, perhaps, blaming his flock for listlessness, and the other finding fault with the minister for being uninteresting; while all the time the fault was in the foul air. Who has not noticed the deadening effect of bad air in a prayer meeting, when held, as such meetings often are, in the basement of a church—a room usually built with height of ceiling absurdly low in proportion to its size? In such a place, full of people, the air becomes vitiated in a few minutes, and every breath inhaled after that is poison. We have no doubt that many ministers have broken down in health and gone to premature graves by reason of preaching and praying, night after night, for weeks at a time, in badly ventilated rooms.

Architects, building committees, trustees, and sextons ought to have some one to remind them perpetually that fresh air is a vital necessity in churches. Better do without almost anything else than this. A living gospel ought never to be preached in a dead atmosphere. Give us plenty of pure air, and the preachers will preach better, the brethren will pray better, the people will sing better, all our meetings will be better attended, and followed by better consequences. Give each one of us 40 cubic inches of fresh air for every inspiration, and for

every minute of the service the eighteen pints to which we are justly entitled, according to the doctors, and we shall complain less of languor, headaches, poor preaching, and dull meetings, and be less in danger of back-sliding; for we devoutly believe that fresh air is a means of grace.

Dr. J. R. Black, in his lately published work, "Ten Laws of Health," speaks as follows of the great importance of pure air for all living things: "The supreme importance of good, pure lung food for all living beings—the tender infant, the delicate daughter, the robust man, and the old, bowed down with years—cannot be too strongly impressed upon the mind. Pure air is not only the best of all blood purifiers, but it is the best preserver against ill effects from other impurities, and the best of all tonics for weak lungs. The idea, deeply fixed upon the popular mind, that the only way for the weak to gain strength is through eating and drinking, leads to the invention of an endless variety of tempting and over-nutritious dishes, and to the drenching of the stomach with wine and bitters. The practice is a most disastrous one.

"Thousands to-day are suffering in this way, or by having their lungs both starved and poisoned, while the stomach is stimulated to its utmost, and gorged with rich aliments day and night. Yet such often remain pale and thin, and quack doctors urge that more stomach bitters be taken to bring them out. They are also usually carefully housed, and directed to keep away from fresh air, from anything like a current, and are not allowed to take out-door exercise, except on the finest days, and then only for an hour or less each day, for fear of taking cold.

"Besides, the kind of exercise taken is usually un-

worthy of the name, for it too often consists simply in keeping quiet, in any easy posture in an easy carriage. This mode is quite proper for those debilitated by actual disease, but not for the thin, weak, or delicate, who desire to be made strong and healthy. Little by little, and day after day, should out-door exercise be increased, until the body becomes pure enough and strong enough to take care of itself.

“If the uniform half starving of the lungs be long continued, even though the stomach be well supplied, the body gradually becomes weaker and weaker, and paler and paler, in spite of all the stimulants, all the tempting dishes, and all the care which art can devise and affection bestow. And so, in this way, a regular decline in health is established, or consumption developed, all on account of the unfortunate mistake in thinking that colds, weakness and consumption can only be prevented by careful housing and rich feeding.

“Such a system is the very one to cherish and bring on such diseases. It develops them among animals which do not have them in a state of nature. It causes men and women to put large quantities of food into the stomach, which if digested and carried into the blood, does not receive sufficient oxygen and sunlight to develop its strengthening power. It prevents the taking of exercise, to knit into firm fiber and nerve rich elements in the blood. It causes large quantities of nutritious matter to be arrested in its organization, where it must undergo decay, deranging the healthy action of the entire blood current, and producing active disease in some parts of the body, not only from the nutrition, but from the great labor put upon some organ to expel such hurtful matters from the body.

“Perhaps the supreme importance of giving the lungs, day and night, an unlimited supply of pure air, cannot be better impressed upon some minds than by stating that after more than twenty years’ observation of the causes which produce consumption, and a familiarity with the opinions of the best physicians of the day, I am firmly of the conviction that no one need have any fear of this disease if the lungs are only nourished on good air during every hour of life. The breathing of a pure air a few hours each day will not keep off the terrible destroyer, but the lungs must have this kind of air as often as nature requires it, and this, at least, is sixteen times every minute.”

The late Dr. Carmichael was among the first to investigate the influence of close air in producing consumption. Among many facts in illustration of this point, that of the inhabitants of Lewis Island (west of Scotland) is remarkable. The inhabitants of that island enjoy the purest air and the highest winds, and live much out of doors, and deaths from consumption there occur at the rate of but sixteen to every one thousand per year; while in close and crowded London, the yearly deaths from consumption average four hundred and fifty to every one thousand. It has been fully established that domesticated animals are much more subject to consumption than those in a wild state; the main difference between these two conditions being, the want of free ventilation and exercise to the breathing function to the full extent. Cows kept in close stables, even when fed on the best of food, suffer from tubercular maladies in a ratio as five to one, compared to those living out doors. Rabbits, monkeys, sheep, and most other animals, can be rendered artificially consumptive by confining them in close and dark places.

Give your animals fresh air. They cannot live in health without it. A man in good health makes eighteen respirations in a minute, and in twenty-four hours consumes fifty-one hogsheds of the air. As the oxygen which supports life is so small, we ought to be very particular how we permit other gases to mix with it and vitiate it. The blood when it enters the lungs, is black, but when the oxygen acts on it, it becomes red, and sends it through the veins to impart life and animation. This black blood is produced by carbon, and imparts the blackness which we see in the face of persons who lose their lives by suffocation, because the air was not allowed to reach the lungs to purify it.

It has been proved by actual experiment that the open air, even in places which would be called crowded and unclean by many, is in reality more healthy than the atmosphere enclosed in cleanly or even luxurious apartments. This is explained by the fact that "in-door" air contains a far smaller proportion of oxygen, especially in rooms which are heated in such a manner that the hot air comes in contact with red-hot cast iron.

When the country was new, and wood plenty, houses were built with fire-places in them, where the great wood fire was built to warm the house and cook the food of its occupants; and the fire-place, though unconsciously to many, was the great ventilator, by day and by night. Since stoves have been used for cooking food and warming rooms, the fire-place has been thought unnecessary, and therefore seldom built. As other modes of ventilation have been very imperfect, people have suffered much from the impurity of the air they breathe. Those having fire-places, who did not understand their use as ventilators, have shut them up or removed them. But

those who have them should let them remain, and open them by night, and when their rooms are not otherwise ventilated, that they may be supplied with one of the most needed elements of life and health. It is wiser and easier to prevent diseases than to cure them, even when they can be cured. When impure air is breathed, the blood is not sufficiently cleansed as it is brought through its air-cleansing process in the lungs; the strength is more or less impaired; and the individual becomes an easy prey to any prevailing disease.

The necessity of breathing pure air will be better understood by showing how soon people die when wholly deprived of it. One hundred and forty-six soldiers having been taken prisoners at Calcutta, were thrust into a room eighteen feet square, which had only two small windows, closely barred with iron, on the west side, being shut up on all other sides, so there was no circulation of fresh air through it. They soon fell into a profuse perspiration, with raging thirst and delirium, that terminated in death in a short time; so that when the doors were opened at six in the morning, or ten hours after they were placed therein, only twenty-three still breathed.

Another later instance of speedy death for want of air occurred on board of the steamer Londonderry, which left Liverpool for Sligo, December 2d, 1848, with two hundred passengers on board. A storm soon came on, and the captain, not knowing the necessity of pure air to sustain life, or the quantity required by each individual, ordered the passengers into the steerage cabin, a room eighteen feet long, eleven wide, and seven high; closed the hatches, and fastened a tarpaulin over the only entrance to the cabin. Thus they were compelled to

breathe the same air over and over again, or break open the hatches, which they did after awhile, but not till seventy-two of the passengers were dead. The blood started from their nostrils, eyes and ears; their bodies were convulsed, and their sufferings very intense. Both these examples prove that the want of pure air was the immediate cause of death.

The breathing of impure air by fewer individuals in a room is less marked, and slower in its deleterious effects, so that those who do not understand those effects do not see the causes which produce them. Hence, costly dwellings, churches, stores, manufactories, shops, steamers and cars are built without any effectual mode of healthful ventilation, and those who occupy them gradually but surely decline in health and strength. These things ought not so to be. Life and health are too precious to be injured when it can be avoided. All people, in all places, either for a longer or shorter time, should if possible have a constant supply of pure air. Ventilation may be so planned as to preclude any inconvenience from the ingress of cold air. Individual and public health would be greatly improved and life prolonged if all people and animals had at all times sufficient pure air to support healthful respiration. But in families and societies this is now the exception rather than the general rule.

The disagreeable and unhealthy evil of the foul gas escaping from a kerosene lamp, burnt all night in a sick-room, is very easily remedied. All that is necessary is to take a raisin or any other suitable-sized box, that will contain the lamp when set up on end. Place the lamp in the box, outside the window, with the open side facing the room. When there are blinds, the box can be attached to each by leaving them a little open and fast-

ening with a cord; or the lamp box can be nailed to the window casing in a permanent manner. The lamp burns quite as well outside, and a decided improvement of the air in the room is experienced.

Grown people want good, fresh air, and will find their health largely decline when deprived of it. How much more must an infant, in its first struggle for life, be dependent upon it?

Nurses and mothers will often put their infants in close rooms, from which the oxygen has been used until they are themselves debilitated and languid; and they will not only put an infant in such a close room, but will wrap it up in blanket and bed, and thus nearly suffocate it, depriving it of all the air, except what it can draw through these wrappings.

It is said that forty thousand children were destroyed in England, between 1686 and 1799, by being smothered or overlain by parents.

Very true, children, especially small and quite young ones, must be kept warm; but it is not necessary to warmth, that their faces and noses should be covered up so that air cannot have a ready access. Give them room to get their noses out where there is air that has not been breathed over again and again, until it has more bad than good in it—until it is foul with the exhalations of their bodies—not always kept as clean as they should be.

Many having the care of infants sleep with them, covering the infant's head up in bed, without a crack for fresh air to enter—all tucked up thus for fear the "dear creature will take cold," and then are always complaining that their "baby takes cold so easily." The truth is, no children will take cold so easily as those. Never having their quota of pure, fresh air to breathe, they are

never robust and strong, but puny and weak, overcome by anything that would not even affect well children.

They are partly asphyxiated from the want of enough good, wholesome air—starved for oxygen. This keeps the skin of a dark purple color, not fresh and ruddy; or if they are not dark and purple, they are pale, and of a tawny white, and without the endurance they should have. The first time they get a sniff of fresh air they “catch cold.”

The air of any place is salubrious where the water is good, and where this is pure and tasteless, the air, in general, is free from any offensive smell. Where sugar readily enters into a dissolved state spontaneously, the walls of the house are stained and changed in color, the papering loose and detached, and metals acquire rust or verdigris on their surface; these are presumptive evidences that the situation is damp, and therefore unwholesome.

NIGHT-AIR.

Night air is not always so healthy as daylight. This is because the air is often more impure at night than it is in the daytime. Gases collect, miasma spreads, the atmosphere is damp and chilly at night, while the sun and daylight drive these above the stratum in which we live and walk. Infectious diseases are more liable to be contracted at night, than in the daytime; so are miasmatic diseases and epidemics, and all diseases dependent upon a specific cause. Domestic animals, such as cows and horses, “do a great deal better,” farmers say, when they are housed at night and protected from the chilling

damps and impure gases which float near the earth's surface, than they do when they are out and exposed to them; and "human animals" it is needless to make mention of, never enjoy the best of health, when placed much under their influence, except it be upon the ocean. Now, no one ever supposes that it is the *air* that has any thing to do with causing sickness of persons exposed much at night. It is *not* the air—the substance which we breathe, and which supports our life. It is the absence of sunlight, the reduction of temperature, the collection of carbonic acid and other extraneous gases, that causes sickness, and this is just what the genial rays of old Sol loves to annihilate. Sunlight is salubrious. Darkness is direful and disastrous—for like fiends of human kind, the fiends of nature prefer darkness to light.

During the months of September and October, throughout the United States, wherever there are chills, and fever and ague, intermittents, or the more deadly forms of fever, it is a pernicious and even dangerous practice, says Dr. W. W. Hall, to sleep with the outer doors or windows open; because miasm, marsh emanations, the product of decaying vegetation—all of which are different terms, expressing the same thing—is made so light by heat that it ascends at once toward the upper portion of the atmospheric space, and is not breathed during the heat of the day; but the cool nights of the fall of the year condense it, make it heavy, and it settles on the ground, is breathed into the lungs, incorporated into the blood; and if in its concentrated form, as in certain localities near Rome, it causes sickness and death within a few hours. The plagues which devastated Eastern countries in earlier ages were caused by the concentrated emanations from marshy localities, or districts

of decaying vegetation; and the common observation of the higher class of people was, that those who occupied the upper stories, not even coming down stairs for market supplies, but drew them up by ropes attached to baskets, had entire immunity from disease, for two reasons: the higher the abode, the less compact is the deadly atmosphere; besides, the higher rooms in a house in summer, are the warmer ones, and the miasm less concentrated. The lower rooms are colder, making the air more dense. So, by keeping all outer doors and windows closed, especially the lower ones, the building is less cool and comfortable, but it excludes the infectious air, while its warmth sends what enters through the crevices immediately to the ceilings of the rooms, where it congregates and is not breathed. We have spent a lifetime ourselves in the West and extreme South, and known in our own person, and as to those who had firmness to follow our recommendation, that whole families will escape all the forms of fall fevers who will have bright fires kindled at sunrise and sunset in the family-room. But it is too plain a prescription to secure observance in more than one family in ten thousand. After the third frost, and until the fall of the next year, it is an important means of health for persons to sleep with an outer door or window partly open, having the bed in such a position as to be protected from a draught of air.

Yet there is a popular prejudice concerning night air. Its effects are not always evil. In her admirable writings on hygiene and the management of the sick, Miss Nightingale has done much to correct this mistake. It was formerly the belief that the air of night was universally very injurious. But the fact is, that, under certain circumstances, it is as healthful, or even more

so, than that of the day-time. The night air of large cities, such as London, when the bustle and commotion, which cause it to be loaded with dust particles, is comparatively quelled, and the numerous fires which contaminate it with their smoke are mostly extinguished, is purer than that of the day. Nothing conduces more to healthy sleep than good ventilation, and no mode of ventilation surpasses that obtained by opening a window at the top, by which the influence of draught is avoided, while the upper stratum of air, to which impurities ascend, is certainly renewed. But there is still another reason for at times adopting night, even in preference to day, ventilation. In sultry weather it is a common mistake to open the windows instead of keeping them altogether closed, as is the case in very hot climates. But a little reflection will show that since the thermometer in the sun always greatly exceeds that shown at the same time by another thermometer placed in the shade, by opening the window we admit air much heated into our rooms. The proper times under such circumstances for ventilation is during the night, when the external atmosphere has cooled down. By adopting this plan in hot weather, the temperature of a room may always be kept several degrees lower than if the opposite course is pursued.

Did you ever test these two kinds of night air by going early in the morning into the room of a person brought up to sleep with closed windows, and immediately afterward into one where the sash has been lowered six inches from the top, and raised six from the bottom? Well, what did you find? In one, however pretty and well arranged, however healthy, neat, and well-bred its occupant, a smell of bed-clothes, of damp

towels, of dust, of carpet—all slight, but all indicative of that used up condition of the atmosphere which is so fatal to a sleeper. In the other, no better situated or furnished, an elastic feel, a perfume of freshness which made breathing pleasant. Was it not so?

Or did you ever compare your own sensations after sleeping in fresh air with those produced after sleeping in foul? How many of the failures, the mischances of life, the morning dullness which hindered this or that, the refusal of the brain to work at a critical moment, the apathy, the blindness of perception, date back to the unaired bed-room which sent us forth unrefreshed to our work, and ushered in a depressing and discouraged day.

There can be no doubt of the beneficial effect to health of a free communication at night of the air of the sleeping-room with the external air. This seems becoming more and more pressed upon the minds of the public in opposition to the old crude notion of the noxious quality of the night air. We remember to have read an account, a few years back, of the testimony of a gentleman advanced in years, who attributed his health and prolonged age entirely to sleeping in a room with an open window.

A quart of water is daily passed through the skin of a sound person. It evaporates through the minute openings which cover the whole surface, and if these be plugged up is compelled to travel through the kidneys, and gives rise to internal disorder. Ablution, therefore, if sound health is to be preserved, is a duty of the first importance. Pure air is also essential to health, and at night the free supply of it is of especial moment. Each sleeper draws into the chest, about fifteen times a minute, a certain quantity of the surrounding atmosphere, and

returns it, after a change within the body, mixed with a poison. One hundred and fifty grains by weight of this poisonous ingredient are added to the air of a bed-room in one hour by a single sleeper, more than one thousand during the night. Unless there be a sufficient quantity of air to dilute this, or unless ventilation provide for a gradual removal of foul air, while fresh comes to take its place, health must be seriously undermined.

THE IMPORTANCE OF LIGHT.

The most important agent in the world, next to warmth, is doubtless light,—sunlight. Its power is very subtle and effective. It has been found to work peculiar changes even in dead matter. On living vegetation sunlight produces the lively green, with all the beautiful and rich variety of tints and hues in flowers. When deprived of light, the green comes not upon the stalk and leaves, the flowers do not ordinarily appear at all, and there is no fruit. The departure of sunlight, at the close of day, is thought, likewise, to be the cause of that peculiar folding or withering together of the leaves and flowers which is called the sleep of plants. From all of which it seems quite evident that light promotes nutrition, health and life in vegetation.

Nor do human beings thrive in darkness. Prisoners confined in dungeons lose their color, vital power, ambition, mental vigor, and sometimes their reason. Children kept much in dark rooms are slender, pale and sickly. Women kept so are extremely nervous, pale or painted, and if they live are prematurely withered. They are troublesome or insipid as wives, and vexatious or noth-

ing as mothers. There can be no health, indeed, in the absence of light, either for vegetation or for man.

And that light is equally important in the treatment of sickness, is made clear by the somewhat recently discovered fact that patients in the sunny side of hospitals recover much more readily than those who are assigned by the unfortunate lots to the regions upon which the sun never looks down. Death takes uncommon liberties with men who are deprived of sunlight.

Hence there should be light—sunlight—within the house, in all the rooms where people are expected to recover from their maladies. It is the medicine of heaven, as important for the mortal body, possibly, as the light of knowledge is for minds diseased. Light and life agree together, as darkness and death delight to kiss each other.

And yet there is a strange perversity with men, and more especially with women, to blockade their windows, to create an artificial night around their friends when lying sick. The tender wife consigns her groaning husband or her moaning children to the shades, the emblems and perhaps the harbingers of shadows from the tomb—even to death-laden darkness. The doctor, who is called to help the patient back to life, is sent into this dreary, artificial night, to find the person he would save. He often stumbles upon the chairs or footstools in his wandering, and is too good, or patient, or stupid to swear. And to his shame be it said that he often leaves without rescuing the poor unfortunate from the infernal darkness.

It has been found that morning light is better than the light of evening. It has more power. Photographs are made more readily and perfectly before mid-day. Plants

thrive and grow more rapidly while yet the sun is mounting up the heavens, and less rapidly while he is passing down his western slope. The morning beams, therefore, should be especially invited through uncurtained windows to the room where sick folks lie. And let not the curtains come down again until the sun goes down into his ocean bed.

Light is as necessary to sound health as it is to vegetable life. Exclude it from plants, and the consequences are disastrous. They cannot be perfected without its vivifying influence. It is a fearful mistake to curtain and blind windows so closely for fear of injuring the furniture by exposure to the sun's rays; rooms positively gather elements in darkness which engender disease. Let in the light often, and fresh air too, or suffer the penalty of aches and pains, and long doctor's bills, which might have been avoided.

Light exerts a chemical action which tends to purify the air we breathe, and infuse strength into our own frames. Dark rooms are unfit for the dwellings of human beings.

If a law should be passed limiting the quantity of sunlight that a family should have to the stinted supply admitted through the heavy curtained windows of their somber parlors, it would be considered an outrage upon constitutional rights—a piece of arbitrary tyranny; and there is little doubt that even the pale occupants of these somber parlors would be ready to rise in rebellion against it. But why do we inflict on ourselves what we would not submit to at the hands of the law? Why do we vote it vulgar to have lighted and aired houses, and fashionable to have dark and close ones, and proceed, in pursuance of that decision, to deprive ourselves of blessings that Nature has supplied with so affluent a hand?

American women make themselves the pale, fragile creatures they too often are, by hiding themselves from the sunshine, and limiting their supply of air; they cultivate a pallor of face by entombing themselves in sepulchral parlors, heavily barricaded against the ingress of light, and carefully avoiding too great draughts of that air that is the agent of light. They have a greater horror of a florid complexion than they have of the neuralgia; they fear a tinge of sunburn more than their years of dyspepsia; and as to freckles—they would rather be confined to bed for life with debility, than have the abominable things invade their pale cheeks. They ought to take a lesson in æsthetics from the great teacher Nature, and learn that there can be no perfection in living beauty without the aid of abundant light and air. The most beautiful flowers flourish in the broad glare of the sun, and all their brilliant colors are borrowed from its beams. Place these flowers in the shade, where the sun cannot dally with their petals, and they turn to sickly, white specters. Stifle them in a close room where there is a deficient supply of air—say in a fashionable parlor where a fashionable belle sits to be blanched, as if she were a stalk of celery—and their crisp, delicate leaves wither into sapless skeletons. Even the violet that blooms in the wildwood apart from the gaze of the world, reaches its highest beauty and perfection when growing where it can gaze on the sun, and borrow a deeper purple from the sky. In fact, light and air are the active agents of life, health and beauty, and if our American women would open their doors and windows to them and treat them as familiar friends, instead of dreaded enemies, they would be more vigorous and more beautiful too.

Dr. Dio Lewis relates the following fact: "At the rear end of our parlor it was not very dark. Indeed, we could see to read small newspaper print at the least lighted point. At that point we put a bracket against the wall, and transferred to it a plant from the window. In four days it looked sick; in two weeks it was yellow; in five weeks it was apparently dead. Another plant was placed on the centre-table, which was about half-way from the front windows to the position of the first plant. At the end of five weeks that had lost its green, and was evidently failing.

"The girls in our parlor, who were out not more than an hour a day on an average, except they went to places of amusement in the evening, were as pale, yellow, and sickly as the plants, and we think for the same reason—a lack of full, strong light."

Prof. W. A. Hammond says that care should be taken both in health and disease to insure a sufficient amount of light to the inmates of houses, and that it is impossible to rear well-formed, strong, and robust children unless attention is paid to this requirement. Sun-baths, or apartments in which the solar rays can fall upon the naked body, are doubtless highly advantageous to health, and rooms for this purpose could probably easily be constructed in or on most of our city houses. At present a chief object of city families seems to be to devise means for keeping the sunlight out of their houses. That this is contrary to nature needs no argument. The world is said to be under-fed; it is certainly under-lit, as we manage it. Let us, then, to use the dying words of Goethe, have 'Mehr Licht.'

Dr. Moore, the metaphysician, thus speaks of the effect of light on body and mind: "A tadpole confined

in darkness would never become a frog; and an infant deprived of heaven's free light will grow up a shapeless idiot, instead of a beautiful and responsible being. Hence, in the deep, dark gorges of the Swiss Valois, where the direct sunshine never reaches, the hideous prevalence of idiocy startles the traveler. It is a strange, melancholy idiocy. Many are incapable of any articulate speech; some are deaf, some blind, some labor under all these privations, and all are misshapen in some part of the body. I believe there is in all places a marked difference in the healthfulness of houses according to their aspect with regard to the sun; and those are decidedly the healthiest, other things being equal, in which all the rooms are, during some part of the day, fully exposed to the direct light. Epidemics attack inhabitants on the shady side of the street, and exempt those on the other side; and even in epidemics, such as ague, the morbid influence is often thus partial in its labors."

Sir James Wyllie, late physician to the Emperor of Russia, attentively studied the effects of light as a curative agent in the hospitals of St. Petersburg; and he discovered that the number of patients who were cured in rooms properly lighted was four times greater than that of those confined in dark rooms. This led to a complete reform in lighting the hospitals of Russia, and with the most beneficial results. In all cities visited by the cholera, it was universally found that the greatest number of deaths took place in narrow streets, and on the sides of these having a northern exposure, where the salutary beams of the sun were excluded. The inhabitants of the southern slopes of mountains are better developed and more healthy than those who live on the northern sides; while those who dwell in secluded

valleys are generally subject to peculiar diseases and deformities.

The different results above mentioned are due to the agency of light, without a full supply of which plants and animals maintain but a sickly and feeble existence. Eminent physicians have observed that partially deformed children have been restored by exposure to the sun and open air. As scrofula is most prevalent among the children of the poor, this is attributed by many persons to their living in dark and confined houses—such diseases being most common among those residing in underground tenements.

Mr. S. S. Cox, who went from New York to Italy in "search of health," ascribes almost miraculous power to light and heat as curative agents. He says: "The peevish, troubled, dyspeptic patient, the disgust of himself and the horror of his friends, by inhaling the air and living in the sunshine, will find himself, before he knows it, on a donkey, climbing mountains, gathering the violet, hyacinth and narcissus; soaking in sunlight on the warm rocks of the shore, or lounging among the fishermen of the beach; or, in some other way, growing into a cheerful and contented, because a healthy person."

This theory is not new with Mr. Cox. Many physicians believe that "in light is life," and remove patients from one room, and sometimes from one house to another to get them under the sunbeams. We do not need a doctor to tell us that our spirits are greatly influenced by the sun's light; and if our spirits, why not our bodies, on the condition of which they so strongly depend? Let us have the sun in our homes and our schools; and if it were of any avail to ask it, we would say in our churches. Is not the feeling which we dignify

with the name of "solemnity," and which is induced by the "dim, religious light" of our sanctuaries, rather a morbid gloom caused by our being immured for hours in darkness? God said "Let there be light, and there was light; and He meant that we, His children, should enjoy it. It is, therefore, our right, and let us have it everywhere that we can.

Sick people often crave for change; they often sigh to have a new view. If you can manage for the patient to look out of the window, do. Place in his sight a new picture, a plant in bloom, or a few cut flowers. These will give some considerable pleasure. Always endeavor to make the surroundings of the sick chamber pleasant. Unless told by the doctor to keep the patient in the dark, never do so. Light is essential to health, and therefore the patient should be so placed that he may be able to see the sun and the sky; and, if a choice can be made, choose the window at which the sun comes in in the morning. Sick people, as a rule, like to lie on that side which faces the light.

When one was about to construct a light house he was asked what was his object. "My object," said he, "is to give light and save life."

EFFECTS OF COLOR ON HEALTH AND DISEASE.

A correspondent of a scientific paper, *The Builder*, announces that he has had occasion for several years to examine rooms occupied by women for manufacturing purposes, and he has observed that while the workers in one room would be very cheerful and healthy, the occupiers of a similar room, who were employed on the same

kind of work, were all "inclined to melancholy, and complained of pain in the forehead and eyes, and were often ill and unable to work." The only difference which he could discover in the rooms was that the one occupied by the healthy and happy workers was wholly whitewashed, and that occupied by the melancholy workers was colored with yellow ochre. As soon as the difference struck him, he had the yellow ochre washed off, and the walls whitened. At once an improvement took place in the health and spirits of the occupiers. He pursued his observations and experiments, not only in large manufactories, but also in small apartments and garrets; and he invariably found that the occupants of such quarters, when these were colored yellow or buff, were less healthy than their neighbors in whitened rooms, and that when the yellow hue disappeared, the low spirits and ill health went with it.

He did not, apparently, extend his observations to other colors, which is to be regretted. But it is something to know what may be in many cases the cause of the despondency and megrims which come upon the people so unaccountably. The young husband who brings his happy bride home to their pleasant cottage, is surprised to find her in a few days depressed and drooping. She cannot explain the cause of the dejection, which troubles her and perplexes him. Anxious fears bewilder his mind. What a relief if he only knew that it all came from that elegant buff wall paper which seemed to make the winter sitting-room so warm and cosy. Or the children of a neighborhood return from school pallid, and complaining of headaches. The school-building is spacious and airy; the teachers are kind; the studies are not too hard, nor the hours too long. No

one suspects that the origin of the trouble is that brilliant yellow wash, with which the trustees, in their liberality, have made the walls of the school-rooms resplendent.

It is only of late that the importance of light, air, and drainage for the healthfulness of our dwellings and public buildings has come to be fully understood. And now we seem to have a new element introduced, that of color, which requires equal attention. It is not to be supposed, however, that white is the only hue of health. Nature herself teaches otherwise. She hangs over us, at all seasons, a roof of blue, flecked with gray. She spreads under our feet in summer a carpet of green, and only during a few months of winter, in certain latitudes, covers the landscape with whiteness. The whole subject is one of great interest, and our natural philosophers who may investigate it, and ascertain the influence of the various colors on health, will do a good work, and make some valuable additions to the laws of sanitary science and household management.

The power of color on disease, once supposed to exist, may be considered as a branch of sympathetic medicine. White substances were considered refrigerent and red ones heating. Red flowers were given for disease of the blood and yellow for the bile. In small-pox, red coverings, bed curtains, etc., were used to bring out the eruptions. The patient was only to look at the red substances, and his drink was colored red. The physician of Edward II., treated the king's son successfully by this rule; and as lately as 1765, the Emperor Francis I., when sick of the small-pox, was by the order of his physicians rolled up in a scarlet cloth; but he died notwithstanding. Flannel nine times dyed blue was used for glandular

swelling. To this day the tradition remains that certain colors are good for certain disorders. Thousands of people believe red flannel is better than white for rheumatism. A red string worn round the neck is a common preventive of nose bleed.

Light is essential to the health and growth of both plants and animals. It is dangerous to the health to live or work in dark rooms; and living in the sunlight in temperate climates is better than medicine. It is a mistake to imagine that colored glass is an improvement over plain glass.

A great deal has been published in this country in relation to certain investigations made by a Mr. Pleasanton, of Philadelphia, in regard to the influence of a colored light upon vegetable growth. Mr. Pleasanton claimed that by the use of colored glass he had greatly stimulated the growth of certain vegetables, and we believe he also claimed that animals exposed to the action of rays that had passed through colored glass were rendered more robust. This whole subject was investigated, many years ago, by Hunt, in England, and recently M. P. Bert states, in the *Comptes Rendus*, that, after very careful and elaborate experiments, he is forced to the conclusion that the use of colored glass is not only useless, but injurious. This was to have been expected, since plants require all the light they can get, and the effect of passing light through colored glass is merely to stop off certain rays and allow others to pass, thus diminishing the total amount of light. We believe that certain trustees of public buildings, ignorant of the true principles which govern this matter, have employed colored glass in the manner indicated by Mr. Pleasanton. The windows of one of the public schools in Paterson,

N. J., are, we believe, glazed with the blue or violet glass.

It is stated as a scientific fact that the shades of scarlet, orange and yellow have a stimulating and even irritating effect on the human brain. Some artists cannot work long with those colors without feeling the effects. Even animals are sensitive to the irritation of scarlet, being sometimes perfectly enraged by the sight of a red dress or shawl. It is said that bulls are made furious for the fight in Spain by a gorgeous display of scarlet; and we all know that the quiet cow and the turkey are affected the same way. Blue of deep and dull hue is said to have a depressing effect on the mind, and other colors to have each its own effect of pleasure or pain. This is a fact which may yet be turned to good account in the case of nervous patients.

It has been proved by recent researches in France that the red rays of the spectrum are those to which the important physiological function exercised by the sun on plants is exclusively to be ascribed. The leaves act as analyzers of the white light which falls upon them; they reject and reflect the green rays, and thus get their natural color. If plants were exposed to green illumination only, they would be virtually in the dark. The light which the vegetable world thus refuses to absorb is precisely that which is coveted by animals. Red, the complementary color of green, is that which, owing to the blood, tinges the skin of the healthy human subject, just as the green color of plants is the complement of that which they absorb.

These facts have been fully stated and illustrated in a paper read by M. Dubrunfaut before the French Academy of Science; and from them he deduces certain prac-

tical suggestions. All kinds of red should be avoided in our furniture, except curtains. Our clothes, which play the part of screens, should never be green. This color should predominate in our furniture, while the complementary red should be reserved for our raiment. He also dwells upon the salubrious influences of sunshine. He mentions cases of patients whose broken constitutions were restored by continual exposure to the sun in gardens where there were no trees; and gives an account of four children that had become pale and sickly by living in a narrow street in Paris, but regained their health under the influence of the solar rays on a sandy sea-coast.

THE VALUE OF SUNSHINE.

The first thing necessary for health is sunlight. No one can live in the dark. Take a plant and place it in a dark room, where no sunlight can enter, and it is sure to die. You may supply the room with pure air, keep it sufficiently warm, place the plant in fertile soil, keep it well watered; and yet all this will avail nothing, if the sunlight be excluded. Indeed, you may light the room with gas, or any other artificial light, and it will do no good. Nothing will make up the lack of sunlight. If the plant cannot have this, it will die.

Take another plant and place it under the shade of a tree. The plant may live, but it will be always pale and sickly. Why so? Because the tree cuts off the sunlight, which is necessary to give life, health, and beauty to the plant. For want of this, it sickens, droops, and fades.

Take a potato and plant it in the cellar. It will sprout

and grow ; but what kind of a growth will you find? Long, slim, colorless vines, with scarcely any vitality in them. What is the trouble? Why, simply this: the plant cannot get sunlight, and for this reason can never attain perfection. Plants need sunlight. This is necessary in order to change the food which they take up through their roots into their own structure. The sunlight exerts upon the plants both a chemical and a magnetic influence, which gives solidity of texture, symmetry of form, and brilliancy of color to all trees and flowers of the vegetable kingdom. It makes them strong, healthy, and beautiful. Deprive them of these influences, and you take away from them one of the first essentials to their well-being.

Animals are subject to the same laws as plants, and trees, and flowers. They have bodies made of exactly the same material as those of plants, and the same laws which govern matter in the vegetable form, govern it in animals. Sunlight, therefore, is just as necessary to the well-being of animals as to that of plants. Deprive animals of sunlight, and they will die. Keep them in a dark room, and they will become weak and sickly. Insects, and birds, and fishes, and all the animals which roam over the prairies or through the woods; all these receive life and vitality from sunlight.

Those which live most in the sunlight are most active, intelligent and beautiful. Owls live in the dark. That is, they are active only during the night, and in the daytime sleep in the shade. But who would be an owl? Owls are stupid birds. In the great cave of Kentucky there is a kind of fish which have no eyes. This is because they live in the dark. Some animals are active during the night, and sleep during the sunshine. Such

are beasts of prey. You see that their nocturnal habits have a bad influence on their character. Mild and docile animals are active in the daytime, and sleep during the night. So, too, boys of nocturnal habits are wild and ugly. Boys who are mild, intelligent, and manly, work in the sunshine, and sleep during the night.

People who live in the dark are never well. They are always pale, sickly, languid, stupid, and only half alive. They go moping about with a long face and sad countenance, as if just coming from a funeral. They never appear truly bright, joyous, or happy. Why? Because their bodies lack magnetism, which can only come from sunlight.

People who live in under-ground rooms are always lank, lean, and colorless, like the potato vine which grows in the cellar. Women are usually more sickly than men. One principal reason is this: most of them do not get sufficient sunlight. They live in darkness, and shut out the sunlight as carefully as they would exclude the contagious atmosphere of the cholera. They shut up all the windows, and blinds, and curtains, and plant trees all around the house, so that no sunlight can enter. In these dark and cheerless rooms they live year after year. It is no wonder they are sick. When they do go out, they carry a shade to keep off the sunshine, as if its warm kisses would blister their poor faces, instead of making them look fresh, fair and beautiful. No wonder they get sick. The only wonder is that they did not die long ago.

Whatever may be true with regard to the co-relation of forces, it is perfectly certain that the combined heat, light, electricity, and magnetism which we derive from the sun, constitutes an important hygienic agency, and I

am inclined to think that few persons sufficiently appreciate the value of sunshine as a productive, conservative or curative agent. Were the central orb in our solar system to be suddenly annihilated, every planet within the orbit of Neptune would be chilled to ice almost instantaneously, and every living creature on the surface of this earth would be lifeless in a few minutes. Whether the vivifying principle we receive from the great luminary a hundred millions of miles distant, be veritable entities or not, is immaterial practically, however interesting theoretically. It is enough for us who are obliged to circle round the source of light and heat once a year, and to be under its direct influence one-half of each day, to know that, without a due degree of exposure to its energizing power, we can neither develop normally nor live healthily.

Nothing which is nutritive will grow well in the shade. Root crops, which grow partly or wholly under ground, as turnips and potatoes, must have their top branches well sunned or they will develop but imperfectly. Potatoes and corn, when planted in the shade of apple trees, yield but a small quantity of food, and that of an inferior quality. And it is a curious and important fact that the plums or bulbs of the potatoe vine, from which the plant must be occasionally renewed to save the crop from annihilation, can grow only in the sunshine. It is true that many fruits, as berries, will do well when shaded by the leaves of the plant or vine on which they grow, but in these cases the leaves themselves are exposed to the sun. It is not the fruit itself that needs the sunlight so much as the plant that produces it.

Some fruits and pods, as watermelons, corn, and wheat, can bear, and require a large amount of direct sunshine;

squashes and pumpkins need less, but are protected by large succulent and waving leaves against an excess. The potato seems to be almost an anomaly in this respect, requiring the entire absence of sunlight from the root, and its abundant presence in the plum or bud. The potato procreates both from its root, which grows in darkness, and its berry, which grows in sunshine; but it is an interesting and instructive fact, that its fertilizing principle is constantly maintained only in that fruit which is exposed to the sun, which necessitates its renewal by planting the balls.

In cities the sunny side of the street is the most salubrious. When malignant diseases prevail, as typhus, small-pox, plague, cholera, etc., the worst cases are always in those apartments which are never pervaded by sunshine. In such places, too, miasmas of all kinds accumulate. In London, there are streets so narrow that a horse and carriage cannot pass through them; and in all large cities there are lanes and alleys so narrow that unless the tenements are constructed with the utmost regard to the light and ventilation, they must inevitably be constant sources of pestilence.

The ravages of the plague during the Middle Ages, in the Old World, destroying one hundred million of the earth's inhabitants, were greater in those cities whose streets were narrowest and darkest. We hear but little of the plague nowadays, for the reason that streets are laid out and houses constructed more in reference to sanitary conditions. There is, however, room for improvement in this direction, more especially with regard to tenement houses, which are still, to a great extent, pest-breeding rookeries.

But many persons who have room enough, with ample

wealth, do not get all the benefit that sunshine is capable of bestowing. Windows are too much shaded, as though the bright colors of the carpets were more important than pure blood and fresh faces. Flies, too, may mar the polished walls and soil the gilded furniture, unless the rooms are converted into cellars. It ought to be understood that bright light is essential to bright colors in living things, and that flies only live and flourish when putrescent elements need their presence.

If all persons would keep their tenements thoroughly clean, the insect scavengers—flies, spiders, cockroaches, bedbugs, and fleas—would never trouble them. These creatures subsist on offal and organic matters in a state of decay. Whoever knew one of them to meddle with a healthy person, a sound apple, potato, melon or pumpkin, a fresh berry, or a green cucumber?

Many country mansions, otherwise well-ordered, have too much shrubbery near the windows, obstructing light and air. Too many trees sometimes surround the house. The result is, the sleeping rooms and door-yards are seldom free of noxious gases.

But the greatest error of all, in both city and country, is in keeping the children out of the sunshine. Without sunshine they will grow flabby and scrofulous, like a potato vine in a cellar. They can hardly have too much of it, short of blistering their skins; and the more they are habitually exposed to the sun, the more power of self-protection the skin will acquire. Let them brown and tan and freckle their little faces *ad libitum*. They will be all the handsomer when they become men and women, and much more vigorous. The large sun-bonnets and long veils with which young ladies hide their "diminished heads," and obscure their pleasant faces, are

pernicious institutions. They render the face pale, wan and expressionless, the skin torpid and insensible, the eyes weak and irritable, the head congested, and the whole system "nervous."

"I wish God had never permitted man to invent 'green blinds,'" said a gay and brilliant woman. Why did she say it? Because she saw, wherever she went, over our fair and sunshiny land, that green blinds were closely shut upon our comfortable houses, excluding the sun's light, which we may be sure God sends down for some blessed purpose. That blessed purpose is to promote growth, to give strength, to impart color, to gild with beauty, to inspire good thoughts, and to insure light hearts and cheerful faces.

It is thoroughly well known that no valuable plant can grow well without being visited by the direct rays of the sun; no plant can bear seed, no fruit can ripen without it. It is thoroughly well known that no valuable animal can grow and perfect itself except it enjoys the direct rays of the life-giving sun. The pigs of a friend of mine, which were shut under his barn, and who had every thing favorable except the sunlight, failed to grow well; they did not at all equal those which had the ordinary run in the open air. So it is, as we all know, with city-grown children; they are pale weaklings the world over.

The fish of the Mammoth Cave are white; their eyes are not opened, because they have not felt the glorious light; they are weak and imperfect, a kind of idiots, if fish are liable to that wretchedness.

Now, then, can man, can woman, thrive if debarred this life-giving light? Can our lovely Americans afford to shut out this light from their houses, and grow idiotic

in the dark? Are not green blinds a curse rather than a comfort? We appeal to our fine women, who wish to be strong, who wish to be beautiful, who abhor "low spirits," to consider this matter.

Recent discoveries have shown there is conveyed to animals, by the direct action of the sun's rays, a subtle current of iron. It does not exist in light, or, but very slightly, if at all, but it is a part of the sun's rays. Therefore, we must enjoy these rays if we would feel their full effect. This iron it is, which is supposed to give color to plants and animals, and to impart strength and beauty. With strength and beauty come health and good spirits, and despondency and fear are banished.

Sleepless people—and there are many in America—should court the sun. The very worst soporific is laudanum; and the very best, sunshine. Therefore it is plain that poor sleepers should pass as many hours in the day in sunshine, and as few in the shade as possible.

Many women are martyrs and yet do not know it. They shut the sunshine out of their houses and their hearts, they wear veils, they carry parasols, they do all possible to keep off the subtlest and yet most potent influence which is intended to give them strength and beauty and cheerfulness. Is it not time to change all this, and so get color and roses in our pale cheeks, strength in our weak backs, and courage in our timid souls? The women of America are pale and delicate—they may be blooming and strong, and the sunlight will be a potent influence in this transformation. Will they not try it a year or two, and oblige thousands of admirers?

There are no blessings which we enjoy here upon this earth—that is, material blessings—but what come to us through the agency of sunlight.

Throughout your whole existence you will find, by following up the same reasoning, that your most trifling act, your most thoughtless movement, has derived its origin from the sun. A blow with the fist, a breath, a sigh, can be exactly estimated in the rays of sunshine. Whether you trifle or whether you work, to make such an effort you have been obliged to expend so much strength; and that strength had already been stored in you by the sun, through the agency of a series of transformations.

Your clothing is all borrowed from the sun. It is he who has spun every thread of your linen, and fed every fibre of your cloth and flannel. He either bleaches it snowy white, or dyes it purple and scarlet with indigo and madder. He furnishes leather for useful service, and furs and feathers for finery and parade. He gives you your bedding; whether you repose luxuriously between eider-down and wool, or stretch your weary limbs on straw, chaff, Indian corn husks, seaweed, or on even a naked plank, as is the lot of not a few, it is the sun who gives both the one and the other. And what do we receive from regions where the sun, as it were, is not,—from the immediate neighborhood of either pole? We receive just nothing. We cannot even get to them. The absence of the sun bars our progress with an impenetrable zone of ice and snow.

In like manner, your fine cellars of hock, burgundy and claret are nothing but bottled sunshine. Your butter and cheese are merely solid forms of sunshine. Your sugar is only crystalized sunshine. Your tea, quinine, coffee and spice are embodiments of solar influences. It is the sun's action which sends you to sleep in opium, poisons you in strychnine, and cures in decoctions of

tonic herbs. You taste the sun in your sauces, eat him in your meats, and drink him even in your simplest beverage,—Water. Without the sun no blood could flow in your veins; your whole corporeal vitality, your very bodily life is the result of the overflowings of his bounty.

Nor is that all we owe to our great central luminary. The physical forces with which we are acquainted,—heat, light, electricity, magnetism, chemical affinity and motion,—dancing their magic round, and alternately assuming each other's form and action, are now believed in all probability to be one in their common birth and origin,—are direct emanations from the sun.

But how grand and beautiful is the theory that *all* material blessings here below come to us entirely and alone from the sun! Its simplicity and unity are completely consistent with the attributes of the Maker. Given motion and given matter, all the rest follows as an inevitable consequence. All nature, from the simplest fact to the most complex phenomenon, is nothing but a work of destruction or reconstruction, a displacement of force from one point to another, according to laws which are absolutely general.

The greatest of physical paradoxes is the sunbeam. It is the most potent and versatile force we have, and yet it behaves itself like the gentlest and most accommodating. Nothing can fall more silently upon the earth than the rays of our great luminary—not even the feathery flakes of snow, which thread their way through the atmosphere as if they were too filmy to yield to the demands of gravity like grosser things. The most delicate slip of gold leaf, exposed as a target to the sun's shafts, is not stirred to the extent of a hair, though an infant's softest breath would set it into tremulous motion. The ten-

derest of human organs, the apple of the eye, though pierced and buffeted each day by thousands of sunbeams, suffers no pain during the process, but rejoices in their sweetness, and blesses the useful light. Yet a few of these rays, insinuating themselves into a mass of iron, like the Britannia Tubular Bridge, will compel the closely knit particles to separate, and will move the whole enormous fabric with as much ease as a giant would stir a straw. The play of those beams upon our sheets of water lifts up layer after layer into the atmosphere, and hoists whole rivers from their beds, only to drop them again in snows upon the hills, or in fattening showers upon the plains. Let but the air drink in a little more sunshine at one place than another, and out of it springs the tempest or the hurricane, which desolates a whole region in its lunatic wrath. The marvel is, that a power which is capable of assuming such a diversity of forms, and of producing such stupendous results, should come to us in so gentle, so peaceful and so unpretentious a guise.

SUN-BATHS.

They cost nothing, and are the most refreshing, life-giving baths that one can take, whether sick or well. Every housekeeper knows the necessity of giving her woollens the benefit of the sun, from time to time, and especially after a long rainy season or a long absence of the sun. Many will think of the injury their clothes are liable to from dampness, who will never reflect, that an occasional exposure of their own bodies to the sunlight is equally necessary to their own health.

The sun-baths cost nothing, and that is a misfortune, for people are still deluded with the idea that those things only can be good or useful which cost money, and they will cheerfully pay away their dollars for Turkish and Russian Baths, when they could get any number of sun-baths, which would be far more beneficial to them, for nothing.

Let it not be forgotten, that three of God's most beneficent gifts to man—three things the most necessary to good health—sunlight, fresh air and water, are *free* to all; you can have them in abundance, without money and without price, if you will. If you would enjoy good health, then see to it that you are supplied with pure air to breathe all the time; that you bathe for an hour or so in the sunlight; and that you quench your thirst with no other fluid than water.

In regard to sun-baths, let any invalid, who reads this and who has been housed for some time, take an occasional walk in the sun, if it should be only on the piazza, and observe the effect. In our opinion, he will find it the most healthful bath he has ever taken.

Sleeping-rooms should be selected in such parts of the house as have the most benefit from the rays of the sun; the bed and bed-clothes should be thoroughly aired and kept in the sun as long as possible every day. Many of the sleeping-rooms in our hotels are so situated as never to feel the influence of the sun's rays, and those who occupy such rooms for any length of time, are simply committing suicide. We have in mind, now, a large hotel in the vicinity of New York city, where not less than two hundred persons are usually located for the winter, in which a large proportion of the bedrooms are in the centre of the building, into which the sunlight

never penetrates. As a corollary, the doctors' gigs are seen standing before the house at all hours of the day.

The Italians have a proverb, which says, "*Dove non entrar il sole deve andar il medico;*" and with them, the first point to be considered in the selection of a house, is: *What is its exposure to the sun?* and they are careful to locate their sleeping-rooms on the side of the house where there will be the most sun.

Again, too many houses in most of our cities, and very many in country villages, are completely buried from the sun by shade-trees. Elegant establishments, these houses, whose occupants can command every luxury within the reach of wealth; saloons into which rank, beauty and fashion are welcomed, but from which the sunlight of heaven is totally excluded by shade-trees!

At the risk of being denounced as an iconoclast, we would lay the axe to the root of at least two-thirds of the shade-trees which surround our houses and line our streets.

Shade trees near houses are beautiful, but they never should be so closely planted as to exclude the bright sunshine, and thus cause dampness in the dwellings. When trees spread out their broad arms, and prevent "old Sol" from sending his cheerful rays into every room in the house, their branches should be thoroughly pruned, or every intermediate tree cut down.

Dr. Hall, says, respecting light: "No room without the glorious sunshine is fit for any living creature—man or beast. The glorious sunshine, the free and boundless gift of a beneficent Creator, is the source of all buoyant, healthful life."

A correspondent of the Southern Cultivator states that a friend of his had a large number of the barren mul-

berry trees growing in his yard, and casting such a dense shade that the rays of the sun never reached the ground. He called his attention to this, and advised him to remove every alternate one. This was not done; they were allowed to stand. That season he lost his wife and three children by sickness. The correspondent referred to attributed this sickness to the dampness in and around his friend's house, caused by the deep shade of the trees. His inference is probably a correct one, for a free admission of cheering light can never be excluded from any house by shade trees (or anything else) but at the peril of health.

Complete exposure of the person to sunlight invigorates and increases the activity of the cerebro-spinal nervous system, makes a person feel strong, active, lively, cheerful, elastic, buoyant. In all diseases, therefore, where the mental faculties are involved, as in insanity, melancholy, despondency, dullness, confusion of ideas, &c., it is a powerful auxiliary, and in many cases a necessary concomitant to a cure.

An open window, with the direct rays of the sun coming in, will be good for the little one. On a hot summer day, to lay it down near the window, quite nude, and let it lie for some minutes where the rays of the sun may fall upon its skin, will give it new life. There is a vital relation between sunshine and a vigorous human being. Seclusion from sunshine is one of the greatest misfortunes of civilized life. The same cause which makes potato-vines white and sickly when grown in dark cellars operates to produce the pale, sickly girls that are reared in our parlors. Expose either to the direct rays of the sun, and they begin to show color, health and strength. When in London, some years ago, I visited

an establishment which had acquired a wide reputation for the cure of those diseases in which prostration and nervous derangement were prominent symptoms. I soon found the secret of success in the use made of sunshine. The slate roof had been removed and a glass one substituted. The upper story was divided into sixteen small rooms, each provided with lounges, washing apparatus, etc. The patient, on entering each his little apartment, removed all his clothing, and exposed himself to the direct rays of the sun. Lying on the lounge and turning over from time to time, each and every part of the body was thus exposed to the life-giving rays of the sun. Several London physicians candidly confessed to me that many cases which seemed only waiting for the shroud were galvanized into life and health by this process.

Children need sunshine, quite as much as flowers do. Half an hour is not enough. Several hours are required. The most beautiful flowers that ever studded a meadow could not be made half so beautiful without days and days of the glad light that streams through space. Light for children. Sunshine for the little elves that gladden this otherwise gloomy earth. Deal it out in generous fullness to them. Let the nursery be in the sunshine. Better plant roses on the dark side of an iceberg than rear babies and children in rooms and alleys stinted of the light that makes life.

Every body should live on the sunny side of their houses as much as possible, and allow the sun's genial rays to penetrate the rooms. Darkened parlors are fashionable evils. True, it is gloomy enough to be ushered into a tomb-like apartment, where one can scarcely grope his way to a seat; and to discover, when his eyes

become accustomed to the dim light, that every chair and sofa has on its "duster," apparently equipped for traveling to some unknown land. But ladies *must* have their carpets kept bright and fresh, even if their cheeks are the paler for it! And so the shutters are tightly closed, and the heavy curtains drawn. But, for the sake of health and beauty, ladies, let this be done only in the "best parlor," if it must be done at all. Let the rooms where the family live be cheerful and sunny. No lady would expect her house-plants to send out full, brilliant blossoms unless she placed them at a window where the sunshine would invigorate them. No more should she expect her children to show fresh, rosy complexions, or to develop genial dispositions, unless they live in light, sunny, airy rooms.

Solomon says wisely, "A pleasant thing it is to behold the sun." If people would but think *always* when they go to building houses that sunshine and sunny rooms are great promoters of health, there would be fewer ill-ventilated and wintry homes erected for the promotion of hypochondria and all manner of despondent maladies.

A cheerful room has a good deal more to do with the cultivation of an agreeable temper than many people are disposed to believe. Put a cross-grained, surly man into the glow of a sunny room in cold weather, and you will make him almost merry, despite of himself.

SUNSHINE THE BEST MEDICINE.

It has long been known that sunlight is important for health. The shady side of a street is always more sickly than the sunny side. French physicians have acquired

great skill in treating nervous diseases by putting the patients under glass roofs, where they are compelled to be in the sun's rays all day long.

Dr. Pease, a physician of San Francisco, has been making interesting experiments with the sun's rays as a curative power in lung diseases. He has consumptive tendencies himself, and found himself benefited by spending an hour or two every day in a photograph gallery, lighted by a skylight. Following out the idea suggested by this experience, he finds that light has a wonderful sanitary power. All consumptives are benefited by living in rooms well lighted; and a patient pronounced incurable by eminent physicians, he declares was completely cured by the use of light. The sun is the great fountain of life and motion to our world. It will be a curious fact if it is found to be also the most skillful physician.

Nervous diseases find their best cure in abundance of sunlight, and many other troubles may be helped in the same way. The sun is one of the best doctors, and sends in no long bills.

One of the ablest lawyers in our country, a victim of long and hard brain labor, says a writer in *Home and Hearth*, came to me a year ago, suffering from partial paralysis. The right leg and hip were reduced in size, by constant pain in the loins. He was obliged, in coming up stairs, to lift up the left foot first, dragging the right after it. Pale, feeble, miserable, he told me he had been failing for several years, and closed with, "My work is done. At sixty I find myself worn out."

I directed him to lie down under a large window and allow the sun to shine over every part of his body; at first ten minutes a day, increasing the time until he could

expose himself to the direct rays of the sun for a full half hour. His habits were not essentially altered in any other particular. In about six months he came running up stairs like a vigorous man of forty, and declared, with sparkling eyes, "I have assisted many dyspeptic, neuralgic, rheumatic and hypochondriacal people into health by the sun cure."

Persons who have been at Rome will remember that the charge for a south-side room is nearly double that for one of northern exposure. This is the result of a practical fact impressed upon the minds of the people from the observation of centuries, that sunshine is healthful; and yet very few seem to have arrived to that height of intelligence. Read over the advertisements any day for "furnished rooms," and the indispensable requisite, next to a "high stoop, brown front, west side," is that it shall be a front room; it may front a pig pen or a plank yard, a stable or a steamery, all the same; only if it is a "front room," to overlook the street; as if we would die if we couldn't see something; as if there was nothing to do but sit at the window and gaze at the passers-by by the hour.

A New York merchant noticed that all his book-keepers became consumptive in a few years, and died. One day it occurred to him it might be the result of their occupying a room where the sunshine never entered, in consequence of high walls; next day he gave his clerks a sunshiny room, and never had a consumptive book-keeper afterward.

Another New York merchant placed his son on a beautiful improved farm in Illinois. The best upper room of the house overlooked the prairie. Three years later the son returned to New York an invalid--the cough, the

hectic, the death! On close inquiry, he stated to the physician that he always found his clothing damp and moldy. "Did the sun ever shine in your room?" "No, sir; it was on the north side of the house."

A French lady became ill. The most eminent physicians of her time were called in, but failed to restore her. At length Dupeytren, the Napoleon of physic, was consulted. He noticed that she lived in a dim room, into which the sun never shone; the house being situated in one of the narrow streets, or rather lanes of Paris. He at once ordered more airy and cheerful apartments, and all her complaints vanished.

The lungs of a dog become tuberculated (consumptive) in a few weeks, if kept confined in a dark cellar. The most common plant grows spindly, pale and scraggling, if no sunlight falls upon it. The greatest medical names in France, of the last century, regarded sunshine and pure air as equal agents in restoring and maintaining health.

From these facts, which cannot be disputed, the most common mind should conclude that cellars, and rooms on the northern side of buildings, or apartments into which the sun does not immediately shine, should never be occupied as family rooms or chambers, or as libraries or studies. Such apartments are only fit for stowage, or purposes which never require persons to remain in them over a few minutes at a time. And every intelligent and humane parent will arrange that the family room and the chambers shall be the most commodious, lightest and brightest apartments in his dwellings.

Sunlight exerts a powerful influence in energizing the organic nervous system. Indeed, as a stimulant to all the functions of organic life, I believe it has no equal

within the range of natural agencies. Its tendency always is to induce the proper development of the physical organization, promoting the complete change and perfect assimilation of food to the wants of the organism. Hence the immense value of it in scrofulous constitutions where imperfect assimilation of food and poor physical development are prominent characteristics. The observations of Dr. Edwards on the influence of light in promoting the perfect development of animals, led him to conclude that in climates where nudity is not incompatible with health, exposure of the whole surface of the body to light is favorable to the regular formation of the body; and he, therefore, has suggested isolation in the open air as a means calculated to restore a healthy formation to children affected with scrofula, whose deviations of form do not appear incurable. In consumptive diseases also, it is exceedingly useful.

The time will very likely come when sunshine, or sunlight, will be so utilized as to be the entire remedy used for very many diseases. That it is a wonderful vitalizer, none can doubt who knows any thing about it.

But how many houses are constructed with a view to getting all the sunshine possible, particularly when so much is needed as in winter and spring? The living, or sitting-room, at these seasons of the year, at least, should have a full southern exposure, with large windows to let in the sunshine.

Sleeping-rooms, wardrobes, closets, and passageways, should receive the cleansing, vivifying influence of the sun. Sickly persons should court the sunshine as much as possible—sit in it, lie in it, luxuriate in it. It doesn't cost any thing, only appreciation.

A room warmed neither by sun nor by fire is unhealthy,

and is not fit for human habitation. It is a poor theory that sends men, women, or children off into a cold room to sleep, on health principles, when warmth has been excluded for a day or a week, or perhaps months. The change in the temperature of a room, having both fire and sunshine, after the sun goes down, is exceedingly marked. A perceptible chill is felt

The beautiful sunshine with its life and health-giving power, brings back the merry old flies, with their drowsy humming, and the housekeeper's tribulations begin. But, dear house mother, bar and bolt them out with mosquito netting, but do not scare them off by darkness. Do not close up your shutters and make your house seem like a sepulchre. If the bright beams do fade your carpet a little, better that than the roses on your children's cheeks. Children nor grown people can be happy in sunless houses. Oh, the damp, fetid odors that gather about unlighted, unaired rooms—the deadly miasmas which lurk in the folds of the choicest drapery, which circle about the fine carvings and shining plate. If our eyes could be opened to see them, we should turn away with loathing, and throw open our doors and windows to let the free air chase out the pestilence. It is a fearful thing when an epidemic does enter such a home. It makes as deadly havoc as in the squalid homes of a city.

Sunshine is medicine for the weak and diseased. There is an institution in London founded on this principle, where thousands of sick are cured by this agent alone. The farmer needs to consider the value of sunshine in wintering his stock. Cattle shut up all winter in a dark stable, come out in the spring looking lean and rough and weak. A few weeks in the bright sunshine puts new life and vigor into every nerve and muscle.

Sunshine let in by properly arranged windows, would have saved half a winter's loss of health and growth.

You will always find these shut-up dwellings full of neuralgias, rheumatisms and all manner of nervous diseases. The children sometimes escape it, because home is so uninviting they stay out of doors as many hours in the day as they are permitted. But, alas, for the delicate lady daughter, who must remain in the cheerless apartments, who must ruin her feeble eyesight reading or sewing by a shutter opened only half a finger in width. Oh, such a system is a cruelty, even when practiced by the most tender of mothers. Such homes are never remembered with joy when the head is gray. The children too often stray away from the cheerless abode, to wander off on the dark mountains.

THE WEATHER.

The weather unquestionably has a much greater influence upon our physical systems than is commonly supposed. That is to say, there are periods of the year when we are especially liable to ill health or physical debility. Some are invariably "taken down" with the return of spring. A languor and lassitude overcomes them, which if they yield to it, incapacitates them physically and intellectually for labor. Others are borne down by the heat of summer, while still others are peculiarly susceptible to autumn's changes, or winter's chilling winds.

There have been collected and collated a valuable series of observations illustrative of the influence of seasons or weather upon the health of the people of Scotland.

These facts show that, taking Scotland as a whole, February is the month most generally fatal to the population, and September the least so, that in the six colder months of February, March, January, April, December and May, the deaths average more than 1,000 per month—the monthly mortality being below 1,000 in the other six months. As might be expected, the town population are found to be more sensitive to the agencies of the weather than the more robust dwellers in rural districts, as is shown both in the earlier hurtful effect of cold, and in the earlier beneficial influences of warmth on the health of the former of these two classes. That the first advent of cold weather is much less prejudicial to health than its continuance for any length of time, is corroborated by the observation that though the mean temperature of February is no higher than that of January, the mortality is much higher, the vital powers being weakened by the sustained cold. The prevalence of northerly and easterly winds in Scotland during March, April and May, supervening on the cold month of February, accounts for the fact that March is the second most unhealthy month in the year.

What is found to be true of Scotland will be found to be true of countries generally. February and March are unquestionably the most unhealthy months of the year almost the world over, while September and October days are most conducive to physical buoyancy and exhilaration.

At a recent meeting of the New York Liberal Club, some interesting remarks were made on this subject. Man, in his delusion, said a speaker, generally opposes his dependency upon nature. Being himself her child, he thinks that no impression is strong enough to leave a

durable effect upon him. But experience teaches the very opposite. It shows that man, to a certain extent, was always subject to the climate. It is not generally known, but it is nevertheless true, that a pure, moderately dry air generally produces great mental sprightliness, especially with full-blooded persons. A cloudy and moist atmosphere, on the other hand, produces mental relaxation, and, with many, melancholy. This explains why suicides so often happen when the sky is overcast. The depressed mental state is thus further enhanced. Villeneuve reports that of every ten suicides which were committed in Paris during two years, nine took place in the rainy season. The influence of the climate is also well exemplified in the case of mountaineers. They are quicker, more active, and excitable.

From the unequal action upon the body, and its reaction upon the mind, the character of various nations may be explained.

The influence of a moist atmosphere is strikingly illustrated in the case of individuals who have been weakened by previous illness, from the great number of suicides committed at the close of the year 1828, in the Dutch places Groningen and Sneek. Most of the unfortunates had suffered from the epidemics of 1826 and 1827. In the city of Sneek, with 6000 inhabitants, not less than four suicides took place in one week, and among those was a boy of eight years.

The Swiss naturalist, Desor, in a recent essay, describes the climate of North America as very changeable and dry. After having explained a number of phenomena produced by the climate in general, he depicts its influence upon the inhabitant of this country. He derives from the climate his activity, acuteness, his tall stature,

his eagerness for gain, his practical talent, and his love of adventure

It is also well known that the inhabitants under a preponderating clear sky possess more talent for art, while those under a gloomy sky have more propensity for speculation and thought.

The Medical Recorder gives the following "nine aphorisms" of Dr. Ballard upon the relations of the atmosphere to health.

1. That an increase of atmospheric temperature is normally associated with an increase of general sickness.

2. That a decrease of atmospheric temperature is normally associated with a diminution of general sickness.

3. That for the most part the increase or decrease of sickness is proportional in amount to the extent to which the atmospheric temperature rises or falls.

4. That it is an error to suppose (as is popularly held) that sudden changes in temperature are (as a rule) damaging to public health. A sudden change from cold to hot weather is indeed very damaging; but a sudden change from hot to cold is one of the most favorable circumstances that can occur when sickness is regarded broadly as respects a large population.

5. That, remarkably enough, these influences are most marked in the directions I have mentioned in the colder seasons of the year, and more certain in the winter than in the summer.

6. That rises and falls of temperature are more certain and effectual in their special operation upon public health when at the same time the daily range of temperature is lessened, than they are when the daily range is at the same time increased; rises of temperature increasing

sickness more certainly and markedly, and falls of temperature decreasing it more certainly and markedly.

7. That a fall of rain lessens sickness generally, sometimes immediately, sometimes after a short interval, and that, as a rule, the reduction of general sickness is greater when the fall of rain is heavy than when it is light.

8. That drought, on the other hand, tends to augment general sickness.

9. That wet weather in the summer season operates more certainly in improving public health than it does in the winter season.

Rain, on the whole, would seem to exert a kindly and healthy influence. There is nothing very deadly in it. It may occasion catarrhs and rheumatic complaints, but these are curable with a little management. And we are apt to put to its credit the washing away of many of the most injurious causes of disease by a good flushing of the sewers. Summer diarrhea, cholera, and typhoid fever would be likely to be greatly lessened by a copious rain fall. So says the London Lancet, and an examination of a meteorological and mortality chart shows that the deaths from all diseases were fewest in number during times when the number of inches of rain was the greatest.

Dr. Trench, the medical officer of health for Liverpool, has satisfied himself by a series of careful observations, extending over a number of years, that there is an inverse ratio between the amount of rain and the amount of mortality from infantile summer diarrhea. To the same effect are the tables given by Mr. M'Pherson, illustrating the relations of moisture to the mortality of cholera in Calcutta. According to these tables, the least

mortality from cholera in Calcutta occurs in the months of July, August, and September, which are emphatically the wet months.

Comparatively little is yet known of the effects produced upon health by changes in the weather; but in an address recently delivered in London by Mr. John Tripe, President of the Meteorological Society, he called attention to the few leading facts which may be regarded as established. Of these the more important are, first, that very hot weather or very cold weather is invariably accompanied by an increase in disease and the death rate; and secondly, that a cold, wet summer is more favorable to health than a hot, dry summer.

Whether there is any real progress in medicine or not, it is certain there is progress *out* of it. If medicine does not improve in quality, there is, at all events, less of it. It is being gradually replaced by other restorative agencies. The old practice of treating disease by drugs has, to a very considerable extent, given way to hygienic measures, and among them change of air is increasingly sought by the invalids of all countries. This resource is becoming more and more available to the invalid classes with the multiplied facilities of cheap and comfortable travel.

Few have failed to observe what a vigor and elasticity are imparted to both mind and body by a frosty atmosphere, and what a loss of all these there is in a hot summer day; this is probably owing to the fact that at noon of any clear frosty day in winter, there is ten times as much elasticity in the air as there is at any noon of summer; hence to all invalids, the days most valuable for exercise are those of frosty weather, and those least beneficial are where it is warm or thundery; hence every

hour of daylight spent in the open air in frosty weather in some kind of out-door activities, is that much gain to the vitality of the system, imparting vigor to the mind, elasticity to the body, and elevation to the moral feelings and power of the man.

The extremes of heat and cold are found to produce the same perceptions on the skin; and when mercury is frozen at forty degrees below zero, the sensation is the same as touching red hot iron.

Cold air is not injurious to breathe, even by the most delicate. If it causes irritation and coughing for a time, it is only because it seeks to find its way into diseased or overburdened lungs, to strengthen and heal so far as permitted. The injury received from going into cold air proceeds from having some part of the body insufficiently clothed to protect from cold and dampness, and not from inhaling the fresh cold air into the lungs.

An occasional change of air may be said to be almost necessary to the well-being of every man. The workman must leave his workshop, the student his library, and the lawyer his office, or sooner or later his health will pay the penalty; and this no matter how vigorously and regularly he uses his limbs—no matter how open and dry, and free from sources of impurity may be the air of the place in which he is employed. In the slighter cases of impaired health, the sleeping in the suburbs of the town in which the life is chiefly spent, or even the spending a few hours of detached days in some accessible rural district, at a few miles distance from the dwelling, may suffice to restore the healthy balance of the bodily functions, and maintain the bodily machine in a fit state for its duties.

We should never allow ourselves to forget that nature

intended us for warm-blooded animals. In this country of surprising changes, we are very apt to forget it, especially in the Fall and Spring. At such seasons, when we freeze and simmer on alternate days, there is engendered in us a certain recklessness, which takes no heed of cold or heat, dampness or dryness, and receives all temperatures with the same front, generally a defenseless one. It is certainly very troublesome to change front as often as the weather, and there is a prejudice in American minds against such change, which has a great deal to do with the rapidly increasing population of our grave-yards. People like to have stability of purpose, and if they can have it in nothing else they will try to have it in their dress. They will not make a change until they make a permanent one for the season. No matter how hot it is in the spring, they will wear spring clothes until summer, and no matter how cold it may be in August, summer clothes must be worn until fall shall actually set in. Thus oftentimes suddenly with sad results we find ourselves approaching the condition of the fishes and lizards—for the chill, that alert forerunner of disease, is ever ready, in our climate, to take advantage of circumstances.

We suppose that there are no people in the world so indifferent to the demands of the weather—especially cool weather—as Americans, and one reason of this is that very many of us are ashamed to keep warm. To wrap up and button up, and to put down windows whenever there is a chilling change in the air, argues to most minds, a namby-pamby eagerness to be well that is repugnant to the hardy American soul. So, rather than be laughed at, we shiver. We prefer tragedy to comedy; the grave to the ridiculous.

HOW TO KEEP COOL,

Keep your house cool by shutting out during the day the external atmosphere. Close the blinds and keep the doors shut. Open every aperture to your chimneys and the scuttle on the roof. Thus you will have ventilation and at the same time diminish the nuisance of flies. Sunlight is a great health invigorator, but we can do without it for the short heated period.

The simplest and cheapest way to cool a room is to wet a cloth of any size, the larger the better, and suspend it in the place you want cooled. Let the room be well ventilated, and the temperature will sink from ten to twenty degrees in less than an hour. This is the plan adopted by many eastern nations. A few old newspapers thoroughly wet, and laid on the floor, will answer the same purpose. Hang up before your open doors or windows, or suspend in the draught across the rooms, blankets dipped in cold water and wrung out sufficiently to prevent dripping. This is an easy, simple and wonderfully effectual method of cooling rooms. Keep the door-steps and pavement wet, and sprinkle water in your entry. Do not sleep on feathers nor hair mattresses. Straw, palm-leaf, or husks are preferable. Never sleep naked. Wear a woollen or gauze undershirt, and cover with a sheet. The sheet need not touch the body, but can be easily secured by the corners to the bed posts, leaving a space under its roof. It is a mistaken idea that entire nakedness is conducive to coolness. It is not so. Some material to absorb the perspiration should be worn next to the skin.

Do not neglect the body. It should be kept scrupulously clean. Nightly bathing is almost a necessity. If

a bath tub is not convenient, a sponge or bit of linen or cotton cloth, with a quart of tepid water, is sufficient. The water should not be cold spring, well, or aqueduct water just drawn, but that which has stood for twelve hours of daylight to absorb oxygen from the atmosphere. Better, perhaps, is a bath of warm water, as the reaction, after toweling, produces coolness and invigorates the body. Better take the bath after supper, before retiring, rather than in the morning before eating, as it will induce a pleasant sleep, and a bath when the stomach is empty is anything but healthful, empirics to the contrary notwithstanding.

Wash the whole body. This can be easily done with a quart of water and a sponge or rag, or with the bare hands. Rub down dry with a towel. Apply a brush to the skin smartly, or a bit of hard woolen rag if you have not horse-hair mittens. Your body needs a surface glow as much in summer as in winter. Those who have a bath-room in their houses know the advantages of daily bathing, especially in summer. But a bowl of water is a good substitute. Change under-clothing every day if possible, if not as often as is practical and convenient. If you do not use ice, cool your drinking water with a little tartaric acid. It is equal to lemon juice, and cheaper. A piece as big as a walnut put in a common bucket, or kept in the glass from which you drink, will give a delicious acidulated taste to the water, and increase its cooling properties.

Still air is perceptibly warmer than air in motion, although the thermometer may register the same degree of temperature in both cases. The reason is that the currents of air bear away the effects of perspiration, inducing a more rapid evaporation from the surface. For

this reason the use of fans for producing an artificial breeze has common sense as well as custom to recommend it. A rapidly evaporating liquid applied to the exposed portions of the body induces a local and temporary coolness. Aqua ammonia (hartshorn) is excellent for this purpose. A little of this solution occasionally used on the hands and face will, from its rapid evaporation, carry off the perspiration and leave the skin cool. As sold at the druggists it is too strong; it should be diluted with four volumes of water. For clothing, wear some absorbent next the skin, thin or gauze flannel: eschew linen or bleached cotton; outside, these will do well enough. In the hat wear a wisp of green grass, cabbage leaf, or damp towel, when going out to brave the darts of fiery Sol. In the writer's experience as a campaigner in Virginia he found this to be an excellent preventive of *coup de soleil* when on the march, and compelled the practice by the men under his command.

Do not argue on politics, religion, or any pet hobby. Avoid scandal. Do not get angry, nor fearful, nor anxious. Don't fret. Don't arraign Providence, nor find fault with your neighbors. Cultivate patience, and a stoical calmness under provocation. Do not run, or walk fast, nor get into a perspiration unnecessarily. Although perspiration may not, in itself, be injurious when provoked by a laudable endeavor, do not allow it to be suddenly checked by ceasing exertion and remaining passive in a cool place. Do not get excited, indulge in no controversies, preserve a calm exterior and a quiet mind. Have a clear conscience and a courteous manner, and the "sun shall not smite thee by day, neither the moon by night."

Exhaustive heat, whether in-doors or out-of-doors, is

dangerous, and, above all, worry is most perilous. Mrs. Whitney, in her recent book, "The Other Girls," puts this wholesome truth into her tale. A man dies suddenly of sunstroke in the city, and one who knows of the victim's unfortunate business life says, "That explains the sunstroke. Half the cases are mere worry and drive. In the old, calm times, it was scarcely heard of. Now of a hot summer's day in New York a hundred or two drop down. And then they talk of unprecedented heat. It is the heat and the ferment that has got into life."

Eating and drinking should be regulated in hot weather. In the winter one may eat and drink almost everything he pleases: he can digest almost anything. But when the system is enervated by excessive heat it is a necessity to attend carefully to the quality and quantity of food and drink. Fat meats, solid farinaceous food, as puddings and bread of Indian meal should be shunned. Fish, lobsters, clams, and oysters are not desirable food. Fresh vegetables and fruits, salted fish, meats, and smoked hams are healthy. Pure ice water is excellent: not, however, in large quantities, but taken a swallow at a time. The stomach does not need a load of ice-cold water, only the mouth and throat need lubricating. Drink slowly of ice water. Cold coffee and tea are no better than cold water, and iced milk is dangerous, as it is in any form highly heating. After all, however, any radical change of habit in eating or drinking will prove to be worse than useless. A very good substitute for stimulants is a cool drink made of Brown's extract of ginger with iced water sweetened. It is both cooling and stimulating.

Eschew carbon-generating food, such as meats, rich cake, spiced dishes. Let alone crude substances which

require a large draught on the force of the animal organism to prepare them for assimilation and absorption with the blood, as fresh fish, pastry, puddings, and rich soups. Eat lightly; only enough to keep the system in tone. Avoid repletion and over eating. Shun stimulants. Use ripe fruit freely, salt meats well cooked, fresh vegetable, bread, farina, moderately strong tea, no coffee, and but little ice-cold water.

The pivot upon which the whole turns is that of internal and external cleanliness, both of mind and body. A perturbed, anxious, excited mind, is as impure as a surfeited stomach or a neglected skin.

When the intensely hot weather of summer is on us, persons working out of doors are liable to sunstroke, and if that is not always imminent, other ailments are that an intense heating of the blood and brain makes more or less sure. If the head is kept cool, the man is generally safe; a bunch of green grass worn in the hat, moistening it occasionally when it gets hot and somewhat dry, is one of the best preventives to sunstroke or dizziness, as well as a most agreeable arrangement for promoting comfort while at work. A wet cloth is perhaps as good, but the wisp of moist grass is always at hand, and if appropriated as suggested, will work wonders.

Many a case of sunstroke and general prostration from the effects of heat has been prevented by keeping wet green leaves in the crown of the hat. If leaves are not attainable, a pocket handkerchief, saturated with water and placed in the hat or cap, will be found to be beneficial in warding off the attacks of the sun. A cabbage leaf worn in the hat and on the chest next to the skin, will keep a man cool and comfortable on the hottest day.

A correspondent offers this practical advice for farmers in extremely hot weather: "Use wide rim, light straw hat, with rather a high crown, not closely fitting to the top of the head; have the rim turned down all around, put your handkerchief in the crown, and if *very* warm, pluck some fine fresh grass and put between the handkerchief and the crown, which will most effectually keep the rays of the sun from the brain. When the pores are well open and one perspires freely, there is not so much danger from the effects of the sun, as the dry, burning sensation sometimes experienced. Labor early and late, and if possible allow yourself a siesta or good long nooning, and in the hottest portion of the day. If your work is near the house, so that it will be practicable, have an early tea, say at five o'clock, with fifty minutes rest, and then continue your work until evening. Be cautious about over-taxing the system. A good rule is never to get so much exhausted as to be unable to rest well at night, and that you will get up tired in the morning. This the constitution will not stand long. Money never will atone for a broken down constitution, and in no sense does over laboring pay. Healthy and light food, simple drinks, such as every farmer can always command, are the best—bread and butter of the first quality and fruits in their season. All may and should have ice, but caution is necessary as to its use when the body is heated. Vinegar and molasses in water make a cooling drink, using perhaps a good proportion of the former. All fixed up drinks, usually, are not proper to allay thirst. Indeed, good sound judgment goes a long way in getting safely through this season of the year with the agriculturist. There are every season a very few excessively hot days, not more than one or two at once, when it is

decidedly imprudent to labor at all through the middle of the day."

Sudden alterations of heat and cold are dangerous. Moderation in eating and drinking, short hours of labor and study, regularity in exercise, recreation and rest, cleanliness, equanimity of temper and equality of temperature, these are the great essentials to that which surpasses all wealth, health of mind and body.

It is surprising what ignorance there is of the most common laws of health among our people. A lady who was accustomed to do her own washing, by which she became very much overheated, used to go into her dark, cool parlor and lie down on the floor for an afternoon nap. The result was a cold which ended in a rapid consumption, and finally laid her in her grave.

It is just this matter of cooling off suddenly when overheated that sends so many of our farmers' youth to an early tomb. It is often a matter of surprise that so many farmers' boys and girls die of consumption. It is thought that abundant exercise in the open air is directly opposed to disease. So it is, but judgment and knowledge of the laws of health are essential to the preservation of health under any circumstances.

The cool breeze, which blows in so refreshingly through the open window, is delightful to the flushed brow and heated blood, but too often there is death in the breeze, or years of lingering illness and consequent wretchedness. A friend who had spent the day in a heated city, stood out on the deck of the ferry-boat as he crossed the river, for ten minutes perhaps, enjoying the delightful luxury of the cold, salt breeze. But soon the luxury was changed to a decided chill, which was far from comfortable. For a long time he lost the use

of his voice, and his lungs were seriously threatened with permanent disease.

Teach your children when overheated to cool off slowly,—never in a strong draught of air. Gentle fanning especially if the face is repeatedly wet with cold water, will soon produce a delightful coolness, which leaves no disagreeable results.

The “ounce of prevention” theory is never of more service than in medicine. No cold comes without a cause, and Dr. Hall states that “four times out of five, it is the result of leaving off exercise too suddenly, or of remaining still in the wind, or in a cooler atmosphere than that in which the exercise is taken.” We should begin to teach our children this principle at three or four years of age—and help them to form right habits in the matter. If this were the regular custom, thousands of useful lives might be yearly spared which are now cut off prematurely by pneumonia, often within a week of the exposure. Others would be spared long years of torture from that arch-inquisitor rheumatism, which seems to haunt our farm houses like a ghost.

At no season of the year ought people to be more cautious against sitting in currents of air or draughts, than during the summer heats. And nothing can be more dangerous than to throw off our clothes suddenly, during a high state of perspiration.

HOW TO BE COMFORTABLE IN COLD WEATHER.

Keep away from the fire as much as possible. Those who breathe the close, furnace-heated air of their apartments cannot for one instant conceive how much more brisk and happy they would be, nor how far more clear

and vigorous their intellectual faculties, if they endeavored to warm themselves by exercise in the open air, by a short, rapid walk in the clear, cold atmosphere, than by sitting in a heated room all the cold day, and shivering and quivering if a door opens upon them; nor how lax and listless they are rendered by artificial heat. Abundance of exercise, free respiration in the open air, inhaling quantities of the bracing tonic-azone, and good food, is the great receipt for keeping comfortable in cold weather.

To one accustomed to out-door exercise the stifling air of an apartment is unbearable. He feels that he must throw open all the windows, else he will suffocate. But let him make known his desire and stay in-doors, inmates are horrified—petrified! What? open windows with the mercury at zero? the idea is shocking! Let us tell you, madam, “that if you will leave the room for ten minutes, and allow the pure air to circulate freely through it, you will complain no more of the heavy sensation in your head, or the severe neuralgic pains in your temples. Many persons think if a room is aired after breakfast, it is enough—but we beg to differ from them, if the room is used constantly. In that case, the windows should be opened while the family are in the dining-room, and closed before they return. We deprecate draughts as much as any one can, and are indebted to them for many aches and pains; but we are the champion of good fresh air, and shall always sing its praises. It is a gift from heaven, free to all, yet some of us seem little inclined to benefit by it, though it is as needful for our well-being as beefsteak or bread and butter.

Our best physicians advise that sufficient clothing to keep the body warm should be worn. If two flannel shirts are not enough, put on three. If one pair of hose

will not protect the feet sufficiently, put on another pair. It is well understood among farmers that if they would have their cows give the greatest quantity of milk in winter, or accumulate fatness rapidly, the animals must be kept warm. Otherwise the body uses up what would go to the production of milk or fat in maintaining its own temperature. Just so with the human body. The force employed in keeping the body at 98 degrees, unless assisted by food and clothing and artificial heat, will consume the energies of the system, leaving little power to be exerted in any other way. So as a matter of economy, it pays to keep warm. The fact is, the more perfectly our physical wants are supplied the more force and energy and cheerfulness we can bring to the performance of our daily tasks.

Comfortable rooms, sufficient food and proper clothing are essentials, and by no false idea of the excellence of stoical philosophy, to be lightly esteemed. It is well understood by those who have tested it by careful and repeated experiment that comfort and economy alike require the keeping up of a fire in the household all night. Then there is one room where the family may be assembled in the morning, and escape the inevitable chills they must suffer from shivering over a newly lighted fire. There is also a saving of kindling wood and the fuss of building a fresh fire, besides the increased heat necessary to overcome the cold of the furniture and walls of the apartment. We by no means recommend warm sleeping rooms. On the contrary, our experience is that rooms without fires, but open to sun and air all day and used only at night, afford the most healthful and refreshing sleep. But for the sake of the little ones and of the advanced in life let there be one room where the fire

never goes out, and to which, on shivery winter mornings, they may go from a warm bed, and find the temperature all that the body requires. No light degree of resolution is required to spring from a warm bed, dress one's self in the cold and descend to a room at the freezing point, perhaps several degrees below it, and all the time feel sunny and warm and jolly in one's heart, when the finger's are numb and the feet like lumps of ice, and the cold making goose-flesh and playing hide and seek up and down one's spine.

There is a baleful error in the popular mind as to the nature and effects of pure air, warm air, and cold air. Warm air may be as pure as that of the poles; and although cold air is almost a synonym of pure air, and although it is healthful to breathe a cold air asleep or awake, yet the breathing of cold air is healthful only to a certain extent. It is not true that because it is healthful to sleep in a cool room, it is more healthful to sleep in a very cold room, not only because, as has been previously stated, carbonic acid becomes heavy under a great cold, and falls from the ceiling to the floor and bed of the sleeper, but because also a great degree of cold in a room where one is sleeping is very certain to cause dangerous and even fatal forms of congestions in the brain and lungs. The same ailments result from keeping sitting or sleeping apartments over heated. In mid-winter, the heat of a sitting room should not exceed sixty degrees of Fahrenheit, five feet above the floor. In the chambers of the sick in French hospitals, the directors are careful that there shall not be a greater heat than sixty degrees or about fifteen Centigrade. The temperature of a sleeping apartment for invalids and for children in health should range about fifty degrees in

cold weather, and not run lower than thirty five; there is no advantage in sleeping in a colder atmosphere. Five hundred cubic inches of pure air should be delivered to invalids and sleepers every hour, as is the custom in the best regulated French hospitals.

Dr. Hall protests earnestly against sleeping in cold rooms, or opening windows at night in chambers during the winter. One feels the change instantly on going from a warm room into the open air in winter, and but for vigorous exercise, the whole system would receive a sudden shock from the great change.

There is equal danger in passing from warm sitting-rooms to cold chambers. The lungs have a temperature of ninety-eight degrees, and if they inhale air all night at forty or thirty degrees, the result may be inflammation of the lungs, or pneumonia. Dr. Hall says, "It is safer to sleep in a bad air, with a temperature over fifty, than in a pure air, with a temperature under forty."

Keeping the feet warm is not always easy in winter. Children suffer much with chilblains. We know a lady whose children used to have chilblains that defied all her care. She tried a great variety of remedies to no purpose; with the winter came the chilblains. Finally, she has found out a simple preventive and remedy in the early stages. The child, when getting ready for bed, sits by the fireside, and the nursemaid dips her hands in *cold* water and rubs the little feet until they glow with heat. Then the little one goes to bed. This process circulates the blood and hardens the skin. It is in reality the plan adopted in Canada, and other cold countries, for mild cases of frost-bite. Snow is put on the face or limb, and the place is rubbed until feeling and warmth are produced.

WARMING HOUSES.

To warm a house healthfully there must be a constant change of air—pure air coming in, foul air going out. This is what is meant by a draught, or ventilation. If no weather-strips are used, a large amount of pure, out-door air will come in at the joinings of the doors and windows; and if there is an open fire-place, or an ordinary grate with fire, the out-door air, being heavier and stronger than that in-doors, drives it up the chimney—displaces it. Hence, weather-strips are health-destroyers, because they prevent the incoming of out-door air—prevent the ventilation of an apartment.

A few years ago an English family of parents and six children, all occupying a single room, were, one by one, taken ill. Medical skill was unavailing, and several of the members died. Being winter time a very small fire was kept up, but every crevice in the cottage was carefully stuffed with such material as might be found in such a household. The physician in attendance had frequently directed an airing of the apartment, but the inclemency of the weather, and the danger of draught upon the sick, was constantly interposed as an objection. All medicine seemed to fail of its ordinary good effects, and the sick failed to improve. At this juncture a window glass was accidentally broken out, and there being in that out-of-the-way poor place no ready means to repair, the “air-hole” remained unaltered, resulting in an immediate improvement of the sick, and final restoration. No death occurred after the breaking of the window-pane. Within a few years a yellow fever hospital was set on fire near New York, and burnt down, the patients having been all removed previously, and distributed about on their beds

on the grass. The weather was inclement at the time, and it was considered a most inhuman proceeding; but all the sick recovered.

The method of procuring pure air in an ordinary register-warmed room was indicated a century ago by Benjamin Franklin. It is to have both openings—that for the entrance of the pure hot air, and that for the egress of the impure air—situated as nearly as possible to the level of the floor. The warm air, as it enters, rises to the top of the room; if, then, its place of exit be near the ceiling, it will pass out and escape, without much affecting the colder impure air in the lower part of the room. In proportion as the orifice of escape is situated lower, the warmed air from above will press down upon the impure air, and drive it before it out of the apartment and away from its occupants. Not until the point of exit of the air is placed at the level of the floor will the warm current find its way down to the feet of those who are in the room, and replace the vitiated air.

The reason a room takes so long to be warmed after a fire has been kindled is, that the air goes up in a steady column from the mouth of the register, sides of the stove, or front of the grate, to the ceiling of the room, and from thence begins to distribute itself downward, which, of course, is a slow process. To expedite this, take a palm-leaf fan, a shawl, a large towel, or something similar, fan violently or swing the shawl vigorously, thus compelling the upper and lower strata of air to unite, the hot upper to mix with the cold lower. In this way the upper portion, where the thermometer would indicate 80, and the lower, where it would 40, will be compelled to mix, and one would be surprised to witness how much sooner the apartment becomes comfortable.

Of the various means of supplying the degree of warmth necessary to health, and of the different qualities of fuel used for the purpose, there are certain conditions worthy of special attention. It is well known that the quantity of moisture contained in fuel affects the amount of heat it produces. When wet coal or green wood are added to a fire, they gradually abstract from it a sufficient amount of heat to convert their moisture into steam before they can be burned. And as long as any part of the moisture remains in the fuel, the fire is dull and the heat feeble. The consumption of wet coal or green wood is less rapid, but to produce a given amount of heat a far larger proportion of fuel must be consumed than if it were dry; because, not only the steam, but the different gases evolved during combustion affect the usefulness of fuel in proportion to their quantity and according to their capacity for heat. It is, therefore, far from true economy to burn wet coal or green wood on the supposition that because they are more durable they will in the end prove cheaper. Moreover, as moisture with fuel requires a portion of the heat generated to convert it into steam, and as steam has a great capacity for heat—absorbing a great quantity which would otherwise be distributed—it is obvious that the custom of placing pans of water over furnaces is deceptive.

Furnaces, as usually constructed, are liable to become red-hot whenever a strong fire is required. Red-hot iron rapidly consumes oxygen, and if the air in which red-hot iron is placed be supplied with vapor, the facility with which oxygen is consumed is much increased.

Water is placed near furnaces ostensibly to supply moisture, it being assumed that the highly heated air by furnaces is deficient in natural moisture and too dry for

healthy respiration. Such air is, indeed, very injurious and very irritating, but the remedy is worse than the disease. And if a furnace cannot be so constructed as not to consume oxygen or require vapor to aid it in doing so, under the pretext of supplying moisture which is provided at the expense of oxygen, it were surely better to have no furnace.

The amount of watery vapor in air depends upon the temperature, and experiment has determined the force of the elasticity as well as the quantity of vapor for given degrees of heat in the atmosphere; the elasticity of the air being increased to the amount of vapor present.

A cubic foot of atmosphere at a temperature of sixty degrees, contains six and a quarter grains of watery vapor, and the proportion of vapor is doubled for every twenty-one degrees of temperature.

Dr. E. C. Marcey, in the *Journal of Chemistry*, says: Families suffer in health, and dwellings are injured, by the foolish practice of evaporating water in connection with stoves and furnaces. No family should allow several pailsful of water to be changed into vapor every week, to hang in the atmosphere of rooms, and impinge upon furniture and walls. A pailful of water makes seventeen hundred and twenty-eight pailsful of steam. What an atmosphere this must produce for human beings to live in! Is it natural? Is it pleasant? Is it healthful? No. We have always found the most cases of croup, influenza, rheumatism, coughs, &c., in families who entertain the erroneous and vulgar idea that much moisture is essential to health. A better system of ventilation, a more careful adjustment of temperature is what is wanted in our dwellings—not an abnormal steam-impregnated atmosphere.

Another erroneous practice in regard to furnaces as well as stoves, is that of closing the damper when the smoke has ceased to be given off. This practice is highly pernicious. Burning coals, even after they have ceased to smoke, always give out carbonic acid in large quantities, and if this gas is not allowed to escape up the chimney, it contaminates the air of the apartment.

By applying these truths to rooms heated by closed furnaces supplied with water, we perceive that instead of oxygen which has been consumed by the red-hot iron, the air is intensely rarefied with vapor and filled with carbonic acid, both dangerous conditions to health and life.

The atmosphere contains within itself the means of its own purification ; and, if allowed free scope, it slowly but certainly neutralizes all foreign substances. True and effectual ventilation consists in free access of pure air, and whatever of the many ingenious contrivances for warming air, if they do not have this for their aim and end, they are proportionately ineffectual and worse than useless.

A physician attributes much of the sickness in winter to the bad effects of coal gas. He says in nine out of ten houses that he enters he notices coal gas in the air they breathe. Many times he finds the damper in the stove-pipe closed to save coal, and the result is a room full of gas, not noticed by the inmates, perhaps, but by those who come in from the fresh air. He condemns dampers of every kind in pipes where coal is used. He says, shut your stove tight and cover your fire with ashes if it burns too fast, but don't have a damper in the stove-pipe.

The most deadly wounds are inflicted by cold on those who frequent public places, such as cars, churches, etc. All public places having permanent seats should have

steam or water pipes laid convenient for keeping the feet warm. Not only is this the best mode of disposing of the heating surface, but if economy were to be consulted it is the cheapest. The surface is well distributed in the coldest part of the room, and it is well known that if the feet are kept warm a much lower temperature in the air may be tolerated with impunity. The head does not need warming. With a piece of small pipe in every pew of a church, a congregation might be kept thoroughly warm with probably one-fourth of the fuel required in warming by air furnaces.

There is one cause of sore throats and lung diseases which has hardly been thought of, and deserves to be reprimanded. That cause is chilly houses in damp weather. Nothing in the limits of bad housekeeping more excites the ire of a sensitive person than the poor economy of putting out fires as soon as the almanac marks the time when warm weather is due, having stoves taken down and heaters removed, leaving the family to shiver through the long storms and chilly mornings, bringing on coughs, checking perspiration, and laying the train for fevers and neuralgia.

The cause of at least one-third of the disorders common in spring, we believe to be the half chilled condition in which the people force themselves to live. It is wrong to allow a child or a sensitive person to shiver at any time, for the chill which causes such a sensation must do harm. The system is half penetrated by cold before the creeping, shivery sensation comes on.

A full-blooded, healthy person may take a cold bath in a cold room in winter, without shivering, the instant touch of the water being followed by a warm glow; the same person may be so chilled sitting in a room below

the proper heat a length of time, that serious consequences follow. When women go about the house wrapped in shawls, it is a sure sign that fires are needed, and if economy refuses to light them, it will be justly rewarded by the colds and headaches that are sure to follow.

One grand maxim of life is to keep comfortable, and there is much more in that sentence than most people see. It does not enjoin mere self-indulgence, but it compels one to keep one's own body and mind in the best working order. You can't be useful or good-humored when suffering, and regard for others as well as your own happiness, will prompt you to be both. So have fires lighted if you are cold, even in August.

The apparent recent tendency of fevers, whether epidemic or contagious, prevailing among the inhabitants of large cities, and in some localities in the country, is now sought in the habits of social life.

Dr. Parkin, late Medical Inspector of cholera in the West Indies, believes he has discovered a cause for the greater prevalence of certain diseases now than formerly, in the fact of the general substitution in dwellings of furnaces for the more genial and healthful old fashioned grates and fire-places. Many of the facts mentioned by Dr. Parkin, in his work on "The Causes and Prevention of Disease," seem to corroborate his theory. Birmingham and other large manufacturing cities, it seems, enjoy an almost complete exemption from fevers and other diseases produced by bad air. The reason for this is the number of factory fires. Dr. Parkin further states that the Postmaster of Torri de tre Ponti, (a town in Italy, situated on the margin of the Pontine Marshes,) and who appeared to enjoy perfect health, thus accounted for the circumstance: "I have resided," said he, "more

than forty years in this place, and I have never had the fever. The only precaution I take is, not to leave the house until the sun is somewhat above the horizon; to return home before nightfall, and *then light a fire*. That is all my secret." The natives of some parts of Africa, also, says Dr. Parkin, speaking from personal observation, adopt the same practice, "as I had opportunity of observing with a party of untutored Africans, captured on a slave ship, and located on one of the estates in Jamaica." Another example given as having been observed by Dr. McCulloch, says that a superintendent directing the cutting of wood in Africa, erected twenty earthen furnaces on the spot where his men were employed, lighting them every day. Before this he had always from forty to forty-eight of his workmen sick, but in a very short time the invalids were reduced to twelve, and then to four, and finally to one. Dr. Aton also relates another similar instance of a man whom he found in one of the most unhealthy cellars in the Pontine Marshes, where he had been employed for several years in making charcoal from turf. During this period he had never been affected with any disease—though surrounded with victims of the pestilential fever of the Pontine marshes—and when questioned respecting a circumstance so extraordinary, ascribed it to the fact of his making it a particular point to return home before sunset, and to keep up a continual fire until morning.

Napoleon had fires lighted for sanitary reasons the moment his troops encamped. Unquestionably the modern practice of heating dwellings by furnaces tends to vitiate the air sooner than the use of open fires and grates. In fever and ague districts of this country, old inhabitants learn the value of these suggestions.

DAMP HOUSES.

Few people are fully aware of the danger to health and life of living in damp houses. It is now unquestioned by intelligently inclined men that damp houses are a prolific cause of consumption. This influence is more marked in individuals who are predisposed to the disease of hereditary taints, but unmistakable instances are on record where whole families have died of this disease, in which no trace of hereditary taint was discoverable by the most careful investigation, from the noxious influence of living in a damp house.

What is remarkable about this phase of dampness, like that of malaria, is that its effects may not be immediate, but show themselves years afterward. It seems somehow to produce such latent depravation of the vital powers that at some future time, when certain occult vital conditions are supplied, that tubercular generation inevitably takes place. A family reared in a damp house may for years be apparently healthy, but the chances are decidedly that they will die of consumption before forty-five. These conclusions are borne out by carefully analyzed statistics by competent medical men. Any person who is any way predisposed to lung troubles is in imminent danger, if living in a damp house.

Not only does dampness produce and awake the germs of consumption, it manifests itself in numerous ways in producing disease and breaking down the powers of the system. To intelligent medical eyes, those who have long lived in damp houses are known by their devitalized look. Children manifest effects of the poison in bilious troubles, sallow complexions, scrofulous affections, debility and mirasmus; while grown people suffer from

rheumatism, catarrh, frequent colds and general loss of vitality.

So manifestly dangerous are damp houses to life and health that boards of health and civil authorities should proscribe their use and condemn them as effectually as though they were centers of contagion. We have no doubt but a civil action for damages and under certain circumstances even a criminal action would be sustained before an enlightened court, if brought by a person who had been in any way compelled to live in a habitually damp house.

A house with water continually in its cellar is as unfit and dangerous to live in as a malarious swamp. This is strong language, but facts will prove the statement. The fearful mortality among the poor of large towns and cities is largely owing to so many living in damp cellars. Let no family live in damp houses who value their health or lives.

I recollect one season in a certain locality, that the month of July was very wet, and dampness so accumulated in closets that many found clothing mildewed and even every article hanging in large and pretty well-ventilated rooms was thus affected. The result was that this community, a few weeks later, was visited by a terrible dysentery, which carried many, especially children, to the grave.

When clothing, or carpets, or any fabrics are allowed to remain damp for any considerable time, the emanations from them poison the air, and this poison is taken into the system, and accumulates there till it results in some epidemic disease, and every year carries its thousands to the grave.

Now, for this liability to disease there is a remedy;

and that is, to cause every article in which moisture is liable to accumulate, to be thoroughly dried. Let clothing be often exposed to the heat of the sun, and if this be not practicable on account of long continued rains, let it be hung by the fire until thoroughly dried. A damp carpet, especially in a sleeping room, is very unhealthy. Straw under the carpets of bedrooms is a cause of much disease. Damp cellars, or damp earth under the floor of back rooms, or any accumulation of dampness in or about any part of a dwelling, are contrary to the laws of hygiene, and are destructive to health.

The air of a cellar is close, damp, musty, and vitiated; that of the house-top is clear, pure, and bracing. On the surface of the earth the atmosphere is cold, raw, and impure; on the mountains it is dry, rarefied, and health-giving. The purer the air is the more life does it impart to the blood, the more perfectly is the brain nourished, and the more vigorously does the mind work and the body move. Hence the "study" of the clergyman, the "office" of the physician and the lawyer, the "library" of the family, the "sitting-room" of the household, and the "chamber" of every sleeper, should always be in the upper stories—not merely for the greater purity of the air, but for a reason seldom thought of, and yet of very great sanitary value. The higher we ascend, the more rarefied is the air, the greater bulk is required to impart a given amount of nourishment to the system; this greater rarity excites the instinct of our nature to deeper, fuller breathing, without any effort on our part, and this kind of breathing, as the reflecting must know, is antagonistic to consumption, that fell scourge of civilized society, which destroys full one-sixth of the adult

population. Hence the very suggestive remark of the distinguished naturalist Buffon: "All animals inhabiting high altitudes have larger lungs and more capacious chests than those which live in the valleys." In the same direction is the suggestive statement that in the city of Mexico, situated nine thousand feet above the level of the sea, of one hundred dying annually, only three are from consumption; while in our larger cities, but few feet above the level of the sea, eighteen out of every hundred dead perish from that disease. It should, therefore, be the aim of every student, of every sedentary person, of every invalid, to have the room in which a very large portion of the inactive part of life is spent as far above the ground-floor as practicable, and in such a situation as will allow the sun to shine into it for the longest portion of each day, for this rarefies the air still more, and still more aids in developing and expanding the lungs by the greater depth and fullness of breathing which the increased atmospheric rarity induces.

Among the indispensable requisites of a healthful dwelling are that it shall be absolutely free from damp; because a damp house is a most potent and active and ever-present cause of disease, especially of rheumatism, neuralgia, colds, coughs, consumption and such like. The site, therefore, if not naturally dry, must be rendered so by means of asphalt or cement, throughout the foundation, and the roof and gutters and drainage must be perfect. All the house-drains should terminate outside the house on an open grid or trap; that is, they should be cut off from the street drain, and they should be ventilated by having a pipe run up from every soil-pipe and every bend in the house. And the house should be so placed that the direct rays of the sun shall have free ad-

mission into the living apartments; because the sun's rays impart a healthy and invigorating quality to the air, and stimulate the vitality of human beings as they do that of plants, and without sunlight, human beings, as well as plants, would sicken and die. The aspect, therefore, should be southeast.

Dr. Henry I. Bowditch, in the *Atlantic Monthly*, says: "We know of two families in Massachusetts of whom the following story may be told. Two healthy brothers married two healthy sisters. Both had large families of children. One lived on the old homestead, on the southern slope of one of the numerous beautiful and well-drained hills in that vicinity. The whole house was bathed all day long in sunlight, and consumption did not touch any of the young lives under its roof. The other brother placed his house at a very short distance off, but upon a grassy plain, covered all summer with the rankest verdure. In its front was a large, open "common." In the centre of this, water oozed up from between the split hoofs of the cows, as they came lowing homeward at evening, and the barefooted boy who was driving them used to shrink from the place, and preferred to make the circuit of its edge rather than to follow the lead of his more quiet comrades. Back of the house was a large, level meadow, reaching to the very foundation of the building. Through this meadow sluggishly crept the millstream of the adjacent village. Still further, all three surroundings were enclosed by lofty hills. The life-giving sun rose later and set earlier upon this than upon the other fair homestead. Till late in the forenoon, and long before sunset left the hillside home, damp and chilling emanations arose from the meadow, and day after day enveloped the tender forms of the

children that were *trying in vain to grow up healthy* within them. But all effort was useless. Large families were born under both roofs. Not one of the children born in the latter homestead escaped, whereas the other family remained healthy; and when, at the suggestion of a medical friend, who knew all the facts we have told, we visited the place for the purpose of thoroughly investigating them, we thought that these two houses were a terribly significant illustration of the existence of this all-powerful law. Yet these two homes had nothing peculiarly noticeable by the passing stranger. They were situated in the same township and within a short distance one from the other, and scarcely any one in the village with whom we spoke on the subject agreed with us in our opinion that it was the location alone, or chiefly that, which gave life or death to the inmates of the two.

“We might speak of other homesteads which seem to us now to be the very nests of consumption in consequence of this law, and yet not one parent in a hundred acknowledges even theoretically his belief in the truth of our assertion. Parents themselves, during a long residence, may escape from the dire influences of location; and therefore they imagine, if their children are failing, that some other evil agency is at work rather than this law.

“Illustrative of this error on the part of parents, we cannot forbear relating the following fact: We know of a house situated about a foot above and just on the edge of a small lake. The cellar, if there be one, must be below the level of the water. The house, built with taste, nestles amid overhanging, thickly leaved trees, through which the sun’s rays can scarcely penetrate even at midday. The homestead is overrun with the spring-

woodbine, clematis and honeysuckle. Coolness, dampness and little sunlight are the chief characteristics of the spot. In the midst of summer it is the *beau ideal* of a quiet, refined country house, which any one, even the most fastidious, would desire to occupy. Yet as we have looked at it, and have remembered how one by one the children born in it have been cut off by consumption either at puberty or at early manhood or womanhood, we have turned with loathing from all its external beauties, and have regarded them all as so many false and fatal allurements, bringing inevitable ruin to those who should fall within the sphere of their influence."

Many things which take place are found, when the causes of them are carefully weighed, to be the ordinary consequences of some act or neglect, rather than the effect of the supernatural agency to which they are attributed.

One of these delusions arises from the frequent occurrence of death as the result of inhabiting a new house. In every neighborhood there are those who prognosticate death as the consequence of it, whatever may be the conditions on which it is inhabited. It is enough for them that the owner who constructed it moves in.

That death frequently ensues after moving into a new house, is unquestionably true, but examination will prove that it is due to the imprudence of the occupant, in many cases. The most frequent cause of such an event is the state of the undried plastering. It is, however, sometimes occasioned by the entire change of habits which follows what is frequently a decisive step upward in the career of the owner. Sand is used in constructing plaster, for the simple reason that when the lime itself hardens, there shall be a material dispersed through

it as hard as itself. Water is the agent which produces the effect. When this is suddenly absorbed, from contact with porous bricks, or from exposure to powerful heats, or drying winds, the necessary union is not formed, and the material, instead of being mortar, consists of slacked lime and dry sand. When the water is allowed to remain in the mixture, the hardening process goes on, but proceeds slowly. A mason, examined as a witness some years ago, testified that mortar in a thick wall was twenty or thirty years in acquiring its full solidity. The process is somewhat like that by which nature converts certain materials in the earth into stone.

When plaster is applied to laths, it dries rapidly and thoroughly; but yet it is wholly unsafe to inhabit a dwelling only recently plastered. When occupied too soon, it is as if the walls consisted of water, and the dampness were inhaled at every breath. Very obstinate cases of sickness proceed from this cause.

Damp rooms and damp beds are the sepulchres and winding-sheets of living men.

CELLARS AND DRAINS.

What is the condition of your cellar? Is it damp, close, filled with disagreeable odors, proceeding from germinating or decaying vegetables? If so, it is high time you gave the matter your earnest attention; for you have in that locality the germs of disease, and yourself and family are liable to be prostrated at any moment.

You think your cellar or basement is in good sanitary condition; do you *know* that it is? Have you fairly and

carefully examined the premises? Have you looked over the potatoes, turnips, squashes, and other vegetables, to ascertain their condition? We know that diphtheria, typhoid and scarlet fevers, and many other most serious illnesses have their origin in cellars, both in city and country; and we can do our readers no greater service than to urge them to see that, at all times, they are in a dry, sweet, wholesome condition. Why should farmers and farmers' families, living in the country, away from the pestilential vapors of cities, be so subject to attacks of malignant diseases? There is a reason for it, and we can point it out. They arise from the indifference manifested to the observance of hygienic rules, and the violation of sanitary laws. Cleanliness is essential to health, and it is just as necessary in the country as in city. A family living over a foul cellar is more liable to be poisoned and afflicted with illness than a city family living in its polluted atmosphere, but without cellar or basement filled with fermenting roots and fruits. There is far more sickness in the country among husbandmen than there ought to be. With plenty of pure air, water, and exercise, the evil imp, disease, ought to be kept at bay; and he would be, if a better observance of certain hygienic conditions were maintained. Bad-conditioned cellars, small, close sleeping rooms, stoves,—these are all agents of evil, making the homes of farmers almost as unhealthy as those of the dwellers in cities.

Any one who has not given attention to the subject would be surprised to know of the fearful results that often come from ill-ventilated and impure cellars. Typhoid fever, dysentery, and other diseases have been traced to them with absolute certainty. Scores of families have been broken up by death from this cause, and

scores have been called to suffer long, distressing and dangerous sickness because of an invisible poison that has been generated in their own cellar. Any physician of experience will without hesitation testify to the danger that lurks here. While I am writing, five in a family not far away are low with typhoid fever from some local cause, which probably a close attention on their part might have kept away. A damp, wet cellar is always an unhealthy one, especially if it has not free ventilation and is not kept clean. In such cellars nearly always vegetable matter is decaying; and this is a fruitful source of disease.

Even a dry and well-ventilated cellar should be well looked after, especially as spring opens. All decaying matter should be removed, and some of this can always be found. Attend to the work and do it thoroughly, and then if sickness comes upon yourself or your children, you will not have bitter reflections because of your carelessness. A matter so fruitful of evil, and one that can be attended to in so short a time, and with so little expense, should not be neglected. Attend to it early, before the hurry of spring work; but the better way is to be always attending to it as there is need. A clean, sweet cellar is not only healthy, but how much better it is for the butter, the milk, and the meat, and for everything kept in it.

This will also suggest the importance of seeing to everything about the house that is likely to produce disease. A few hours' work and a few dimes spent for disinfectants are as nothing compared with the benefit received.

A physician lately said to me that cellars under houses were nuisances, because of the dampness and impure air

which they contain, which must affect the air in the house, and consequently, the health of the inmates. But a perfectly clean, dry and properly ventilated cellar is a benefit to any house. A house without a cellar, walled or underpinned all around, often has damp, foul air under it, which is beyond reach or control; but with proper care, the air may be kept pure under a house with a cellar.

But the usual method of ventilation, of having small windows at the top of the cellar, is insufficient. The heaviest, and often the most impure air remains at the bottom, unmoved even by a current of air passing from one window to another. Of course the dampness is not removed, and fevers are often the consequence.

The following is a sure and easy remedy: Provide a pipe, similar to stove-pipe, or otherwise as convenient, from two to five inches in diameter. Place the lower end open within a few inches of the bottom of the cellar, and run it up through the floor into the stove pipe in the usual T fashion. This creates a draft and circulation from the very bottom. In warm, damp weather, if the draft is not sufficient to remove all dampness, occasionally start a quick fire in the stove, which will increase the draft. By this means, the entire air in the cellar may be kept constantly moving and changing, and accumulations of foul air will be impossible.

It is a good rule to have the cellar, not only wholly cleaned out, several times in the year, but also well whitewashed. Lime is a good and cheap disinfectant, and all sinks and drains about the house should be treated with occasional dress of chloride of lime. The old saying that an ounce of prevention is worth a pound of cure is true to the letter.

If you move into a house that you have found unclean, let your first and greatest care be given to the cellar; move nothing into it; move every movable thing out of it; let every grating and door and window be kept wide open, from daylight until bed-time; let the walls and floor be swept as clean as a stiff broom can do it. Let this sweeping and airing be repeated every day for a week; then whitewash the ceilings and walls two or three coats with lime that has never been slacked; then scatter several pounds of copperas around the walls and in the corners. All this care should be taken, because if the air of the cellar is bad, it is constantly ascending into the building, your parlors, your chambers, and your halls, so that you are breathing it day and night; hence the utmost pains should be taken to keep the cellars of our dwellings sweet and clean.

The London Medical Record informs people who store wet coal in their cellars, that they thus lay in a supply of sore throat and attendant evils. Even the fire-damp which escapes from coal mines, arises from the slow decomposition of coal at temperatures but little above that of the atmosphere, but under augmented pressure. By wetting a mass of freshly-broken coal and putting it into a warm cellar, the mass is heated to such a degree that carbureted and sulphureted hydrogen are given off for long periods of time, and pervade the whole house. The liability of wet coal to mischievous results under the circumstances, may be appreciated from the fact that there are several instances on record of the spontaneous combustion of wet coal when stowed in the bunkers or holds of vessels. And from this cause, doubtless, many missing coal-vessels have perished.

One great fault in building houses without cellars

under them, in both city and country, is to make them too low on the ground. There should be distance enough to allow a free circulation of air, say three feet, between the floor and the earth. All rubbish, shavings, etc., should be cleaned away before siding up, and a good ventilation should be kept open to insure dry, sweet air under the floor. Much sickness is caused to many families from low underpinning, and close, damp, stagnant air, carrying miasma into the low rooms through the floor of dwellings. Many houses are built upon flat ground, and the earth thrown around the outside, making a sink under the house to hold water. This is wrong. It is much better to raise the ground under the house, and even gravel and cement before building. At any rate, ventilation under the house should always be attended to. We do not believe in cellars under the house in this climate, but whenever there is a cellar, it should be open, and always kept clean of decaying substances. Guard against the enemies to health that lurk under a house.

There exists a great danger from the use of drains as now arranged, connecting, as they do, our water-closets, bathing-tubs and the kitchen sink, with the street sewer. From the decay of vegetable and animal matter, which naturally finds its ways into the common sewer, noxious gases are formed, which, if allowed to escape into our living rooms, are capable of vitiating the air to that extent as to render it not only unwholesome, but absolutely dangerous. That this danger can and does occur, is readily demonstrable when observing the usual "water-trap," (which is intended to shut off the gases and foul air), during the sudden influx of a great volume of water that usually escapes into the sewer during a rain

storm; when the great pressure brought to bear upon the air and gases in the sewer, forces it through the drain pipe communicating with the house, and from thence through the water in your "trap," through which it bubbles into the room. Then, the difference of temperature between the air in the sewer and that in the dwelling, causes a current through the drain pipe into the house, again introducing the foul air of the sewer. Should a large quantity of water be allowed to escape—as from a bath-tub, into a trap down stairs, every trap up stairs is likely to be emptied of its water through the suction induced by the vacuum which occurs behind the volume of water so escaping. There then exists no impediment to free circulation of noxious gases into the chambers where such traps are located.

In the covered cess-pools into which drains are usually conducted, the danger from escaping gases is far greater, as they must find an outlet somewhere, and naturally follow the drain pipe, into the dwelling, through the water in the trap. For this reason, cess-pools should be located at a considerable distance from the dwelling, and then have a suitable opening through their tops, communicating with the open air, by means of a large pipe. Drains emptying into a sewer should have a perpendicular pipe erected by the side of the house, inserted into the drain, and extended to the top of the house. By such an arrangement the gases would find unobstructed passage to the open air, when seeking such an outlet under the circumstances above enumerated, and the foul air that we are now accustomed to recognize as escaping from our water traps would find an exit where their harmful influences would never be felt.

A recent report of the Commissioners of the London

Sewers contains some interesting testimony concerning the value of wood charcoal as a deodorizer. We have, says the report, in common wood charcoal a powerful means of destroying the foul gases of sewers. Ventilate the sewers according to any suitable plan, either by the open gratings in the streets, or by the rain-water pipes of the houses, or by the pillars of the gas lamps, or by tubes carried up from the drains of every home, or by special shafts in the public streets—in fact, let the gases go out of the sewers how they will, it is only necessary to place a small box containing a little charcoal in the course of the draught, and the purification of the air will be complete. As far as is known, from the various trials which have been made, the strength and endurance of this power are almost unlimited; so that, when once the air-filter has been set up, it will last continuously for years. Its action, also, upon the draught is not particularly injurious. The temperature of the sewers, and the agencies which are at work in circulating the air and ventilating them, are sufficient to keep up a current of foul air through the filters; and even if these be multiplied to a large extent, the friction of the gases upon the charcoal is reduced to an insignificant amount.

VENTILATION.

If our people only knew how many thousands of lives they are annually sacrificing, how many hundreds of thousands are now suffering from fevers and other maladies which have their origin in the inhaling of noxious air, the excitement and alarm on this subject would be unprecedented. They are poisoning themselves by

wholesale, and two-thirds of them have no suspicion of the fact.

Our dwellings are often charnel houses. The very first necessity of every living human being—pure air to breathe—is rarely regarded in their construction. The air actually inhaled steals in at crevices and crannies, felon-like, because it cannot be shut out. Only the defects of our architecture prevent our dying of a vitiated, poisoned, mephitic atmosphere, from which the vital element has long since been exhausted. Most men, including architects, would seem ignorant of the fact that the atmosphere is a combination of different gases, only one of which is wholesome and life-giving, and that this is consumed in the lungs upon inhalation, leaving the residue to be expelled as a poison. The church, lecture-room or other structure which is filled, or even half filled, with human beings, and its doors and windows closed, while no express provision has been made for its ventilation, very soon becomes a slaughter-pen in which no rational being should tarry another minute. Few churches or other public edifices are sufficiently ventilated, while a large majority of them are utterly unworthy of toleration, and ought to be closed by the public authorities until they shall have been rendered fit for their contemplated use, and no longer nurseries of disease and ante-chambers to the tomb.

Our manufactories are nearly all disgraceful to their owners and architects in regard to ventilation. They are often divided into rooms less than ten feet high, each thickly stowed with human beings who breathe and work and sweat in an atmosphere overheated and filled with grease, wool or cotton waste, leather or cloth, and the poisonous refuse expelled from human lungs, which

together are enough to incite a plague, and are in fact the primary cause of nearly all the fevers, dysenteries, consumptions, &c., by which so many graves are peopled. No factory should be permitted to commence operations until it shall have been inspected by some competent public officer and certified to be thoroughly provided with ventilators—not windows, which *may*, indeed, be opened, but in a cold or stormy day very certainly will not be—but apertures for the ingress of fresh and others for the egress of vitiated air.

There is no more fruitful cause of disease and death among us than a vitiated atmosphere. It may operate slowly and treachously, producing scrofula, consumption, etc., or with sudden fatality, as in vicinities where large amounts of carbonic acid are generated. In the changes occurring from the putrefaction of animal and vegetable matters, deleterious products are given off. So poisonous are these, that death takes place when they accumulate in a concentrated form around dwellings. In a smaller amount they produce an endless variety of discomfort and disease, from debility to a permanent loss of health.

We draw upon the atmosphere more than one thousand times an hour for nourishment and sustenance.

More attention ought to be given to ventilation than is ordinarily bestowed upon it. It should become a primary object in the construction of all buildings. The supply of a fresh and pure air should be placed among the first and most essential necessities of life. We can compensate for the deficiency of fire by an extra amount of clothing or an increased supply of food; but nothing will take the place of pure, wholesome unvitiated air.

A great many of the worst crimes go entirely unpun-

ished under our existing laws—in the way of manslaughter especially. Building a house or hall intended for public assemblages, whether religious, musical, political, literary, educational, scientific or otherwise, without providing for its *thorough* and unfailing ventilation, is one of the grossest species of wholesale homicide, and ought to be punished accordingly. Whoever persists, in this day of light and knowledge, in constructing an edifice or hall for any public purpose without providing for its thorough ventilation, ought to be shut up in one of those snug, well-ventilated cells provided by the State, and there kept till he thoroughly repents and undoes the flagrant evil. The laws are shamefully deficient in not providing for the competent inspection and cleansing of public halls, and edifices, taking cognizance of their strength, atmosphere, safety from fire, facilities for egress in case of sudden alarm, &c.

But private dwellings also need ventilation. On this point the majority are misled by a false analogy. The dwellings of our forefathers, small or spacious, *were* ventilated by their open fire-places and capacious chimneys, which sucked up all the air in a room every few minutes, while a fresh supply was constantly pouring in through the cracks, interstices, &c., generally abundant. But our modern-built dwellings of the better sort are so ceiled and plastered, so furnaced and fire-boarded, so carpeted and listed, that they are utterly unfit for human beings to breathe in unless they are also efficiently ventilated. To depend on opening doors or windows is like setting sail for San Francisco without water or provisions, calculating to live by catching fish and rain on the passage. No matter how large or how small a dwelling may be, if it is large enough to have a door in it, there

should also be express and ample provision for its ventilation.

Our forefathers did not thrive in the absence of ventilation, but because *they had it*. It is precisely because we have all departed, necessarily and irrevocably, from their habits that special attention to ventilation has become so necessary. They lived far more in the open air and less in crowded assemblages than the present generation does; they sat around huge fire-places, which voraciously sucked all the vitiated air up the chimney. They slept oftenest in spacious unpartitioned chambers and garrets, whence the stars were visible through the crevices in the sides and roof. *Such* bed-rooms needed no ventilators—need none now. The mischief is that you cannot have them or will not sleep in them. The hospitable old fire-place has been narrowed and lowered, or has given place to a stove or furnace; the bed-room is ceiled and papered; the doors are listed, the floors caulked, and the modern house, though in some respects more commodious and comfortable, is far less healthful and invigorating than those it has supplanted. Hence the necessity for special regard to ventilation.

There were hovels and dens of old, where the poor herded in atmosphere fouler, if possible, than that of our modern churches during service, and of our mansions on soiree night; and from these spotted fever, black death, plague, and other pestilences went forth to devastate the world. If you want these results of the wisdom of our ancestors back again, just blunder on in defiance of the monitions of science respecting respiration and air, and you will probably be accommodated.

I was once called to see a young man who was sick of fever. When I first entered the house it seemed as

though I could hardly breathe so hot and impure was the air. But the room in which he was lying was far worse. Sheets and blankets were hung around the room to make it as nearly as possible air-tight. There was no chance for ventilation. Patient and nurses were sweltering with heat, and literally gasping for breath. It was a wonder the young man had lived so long under the circumstances. A stripping of the walls, a throwing open of the doors by my earnest entreaty, soon gave him comfort, and made the sleepy nurses bright and cheerful.

When we realize that air when it has been once breathed, is unfit for further respiration, on account of the carbonic acid it contains, and that we breathe on an average about 1200 times per hour, and in the course of a day inhale not less than 24,000 gallons of air, we shall see the great importance of proper ventilation.

To ventilate well does not imply that our rooms be made uncomfortably cold in winter, or that in summer we keep the air as it is without. What we want is *fresh* air. This in the winter we should warm, and often in the summer we should dry it, but if we would have vigor or health, we must have the air fresh as God has made it.

In the admirable discourse of Dr. Joseph M. Smith, senior physician of the New York Hospital, delivered at the opening of the new building, he makes the following astonishing statements: The average amount exhaled from the lungs and skin of a healthy adult, of ordinary size, in about twenty-four hours, is about 40 oz., and of this quantity about 10 pwt. consist of animal matter. With these data it is easy to calculate the amount of effete matter eliminated from the pulmonary and cutaneous surfaces in specified periods, by the number of in-

mates which this edifice is intended to accommodate. In making such a calculation, it is assumed that the amount emitted by the sick and healthy adult persons do not materially vary. If the number of patients in this building be 200, then the total amount of pulmonary and cutaneous exhalations will be in one day 666 lbs. 8 oz.; in thirty days, 20,000 lbs.; and in one year, 243,334 lbs. 4 oz.; and the amount of animal or organic matter in these exhalations will be in one day 8 lbs. 4 oz.; in one month, 250 lbs., and in one year, 3,041 lbs. 8 oz.

A similar calculation made in relation to the 500 patients which the three buildings on these grounds are designed to accommodate, will show a total amount in one day of 1,666 lbs. 8 oz.; in one month of 50,000 lbs.; and in one year of 808,333 lbs. 4 oz.; and of animal matter in the first of these periods, 20 lbs. 10 oz.; in the second, 625 lbs., and in third, 7,604 lbs. 2 oz. Such estimates enable us to judge of the degree of liability of disease originating in ill-ventilated or over-crowded human habitations.

It is estimated that the quantity of air vitiated per minute, per adult, is equal to one cubic foot, and that ten cubic feet per minute are not more than necessary to maintain the air in a wholesome condition. Dr. Arnott considers that twenty cubic feet per minute are necessary in such places as soldiers' sleeping-rooms.

The evil results of an insufficient supply of air are not exerted merely through the imperfect oxidation and elimination of the substances which are undergoing decomposition within the system—for the same cause will operate to confine the putrescent effluvia that are given off, as such, from the lungs and skin, which will produce the effect upon the individuals habitually exposed to

them, as if these were generated from some external source. It was ascertained by the experiments of Collard de Martigny, that the fluid exhaled from the lungs is by no means pure water, but contains as much as three parts in one thousand of organic matter. If this fluid be kept in a closed vessel, and be exposed to an elevated temperature, a very putrid odor is exhaled from it; and more recent experiments show that its putrescence depends on the decomposition of an albuminoid substance. There is every reason to believe that the fluid exhaled from the skin is charged with a very similar substance; its presence being indicated by the foul odor of garments that have been too long worn. And thus imperfect ventilation becomes the means not only of preventing the due elimination of decomposing matters from the body, but actually of reintroducing its poisonous products into the blood by the very process which was designed for the purification of the vital fluid.

This is a subject which cannot be too much talked about, till people learn what an important bearing it has on health and life. We learn, from an authoritative source, that the deaths of new-born infants in the Dublin lying-in hospital, during a stated time, amounted to two thousand nine hundred and forty-eight out of four thousand six hundred and fifty births, but were suddenly reduced to only two hundred and seventy deaths during the same period, after a new system of ventilation had been adopted. Thus more than two thousand six hundred deaths, or one in every three births, must be attributed to bad ventilation. Surely nothing more is needed to convince the least educated that proper ventilation—a constant supply of fresh air—is essential to the preservation of life and health. What a crying evil are these

closed doors and closed windows, in a place where a thousand impurities are constantly emanating, and scarcely a particle of pure, fresh air to alleviate!

Here is an argument against tenement houses and overcrowded rooms. The number of inhabitants to a house is as follows in the following cities: London, 8; Berlin, 32; Paris, 35; St. Petersburg, 52; Vienna, 55. The mortality keeps pace with these numbers, being lowest in London and highest in Vienna; and the morality is in like proportion. In Philadelphia the average is $5\frac{1}{2}$ to a house, and in New York from 7 to 8.

The New York Tribune has an article on tenement houses in New York city, showing that 15,000 persons live wholly under ground; that 10,000 deaths occur every year from preventable diseases.

In the model lodging houses of London, where some attention has been paid to ventilation, drainage, and facilities for cleanliness, the entire proportion of sickness and death has been, during the last five years, only one-fourth as great as in the surrounding districts. Were all London as healthy as they, 23,000 lives would be saved every year. Why not save 10,000 lives a year by clean streets, filling and draining cesspools and ventilating houses.

A family of eight persons was found living in one little room, in Fall River, and all the children, six in number, sick in bed.

Windows open more would keep doctors from the door.

HOW TO VENTILATE WITH A COMMON STOVE.

There are some houses in every town whose windows might as well be sealed in with the walls for any purpose they have but to let in the light. They are never opened, summer or winter. In winter it is cold; in summer the flies stray in, or, if they are netted, the dust sifts through the nets. Now, you can tell a person who inhabits such chambers when you pass him in the street—there is such a smell about his clothing. You long for a sniff of cologne or hartshorn, or burnt feathers, or something of the sort to “take the taste out.” A house that is never aired has every nook and corner filled with stale odors of cooked meats, boiled vegetables, especially cabbage and onions, which, as the weeks go by, literally reek in their hiding places. Who has not wished sometimes to hang a new servant’s clothing out of doors some frosty night until it should be thoroughly aired? Fine ladies come sweeping into church with their velvets and silks, said velvets and silks giving unmistakable evidence of having been housed in just such shut-up chambers. Oh, what a tale that odor of pork and cabbage tells about the lady’s style of housekeeping! The very garments of the children tell the same story of uncleanness. It is bad to have unwashed clothes, but there may be an excuse for it. But what excuse can there be for unaired ones, when the air is so cheap and free? There is death in such close rooms. Thousands have been poisoned to death in such rooms. Better a swarm of flies or a cloud of dust; better frost and snow in a room than these intolerable smells. Dear girls, the first thing in the morning, when you are ready to go down stairs, throw open your windows, take apart the clothing of your beds, and let

the air blow through as hard as it will. There is health and wealth in such a policy. It helps to keep away the doctors with long bills. It helps to make your eyes sparkle and to make your cheeks glow, and to make others love your presence. Girls who live in those close, shut-up rooms can barely be tolerated, at the best, in any circle.

It is very important that every room in a dwelling-house be thoroughly ventilated night and day throughout the entire year, if the inmates would have health. The habit that many people are in, of calking every crack and crevice through which air can enter a room, is suicidal, if the room contains an air-tight stove, and has no other means of ventilation, for most of the oxygen is soon used up in consuming the fuel within the stove, and the air within the room is speedily rendered unfit for respiration. We will give several plans for ventilating rooms in winter.

Houses that are already built, and in which no special provision has been made for ventilation, can be ventilated by lowering the upper window sash and raising the lower sash. The fresh air rushes in one way, while the foul air makes its exit at the other. This is simply letting in your friend and expelling your enemy. There is an objection to this mode of ventilation, however, as the heated air all rises to the top of the room and passes out of the upper opening, while the cold air which is denser than warm air, passes in at the lower opening and settles at the lower part of the room. This plan makes the air that surrounds the feet colder than that which surrounds the head, and has a tendency to induce headache or brain congestion; yet this mode of ventilation is far better than none.

Where open fireplaces, grates, or stoves with open fronts, are used, this difficulty is obviated, as the outward draft takes place through the fire at the lower part of the room; therefore, it is unnecessary to raise the lower sash for the outward draft. The upper sash should be lowered, however, to let fresh air into the room. By this means, the air in the upper part of the room is kept equally cool with that in the lower part of the room.

The Massachusetts Medical Society offered a prize of fifty dollars for the best dissertation on ventilating sick-rooms at the least expense, with the least difficulty, and at the moment needed. Whereupon, some body writes as follows:—“*Pull down the upper window sash, and leave the fireplace open.*” This is all there is of it.

Florence Nightingale wisely urged that none of the patients in the hospital which she visited should dread the air from the window. “Keep the doors of the hospital closed, and the windows open,” was her advice. This is true of the night as well as the day. Keep out of the current, but let in the fresh air, day or night, and enjoy it.

The following simple method for ventilating ordinary sleeping and dwelling rooms is recommended by Mr. Hinton in his “Physiology for Practical Use:” “A piece of wood, three inches high and exactly as long as the breadth of the window, is to be prepared. Let the sash be now raised, the slip of wood placed on the sill, and the sash drawn closely upon it. If the slip has been well fitted, there will be no draft in consequence of this displacement of the sash at its lower part; but the top of the lower sash will overlap the bottom of the upper one, and between the two bars perpendicular currents of air, not felt as drafts, will enter and leave the room.”

Generally, ventilation must be from above and below at the same time, because there cannot be a free flow of air outward without a free flow inward. A good plan is to admit a current of cold air at the top of the room by one pipe and emit the heated air by another pipe. The cold air in its descent to the floor becomes warmed by contact with the upward current, and the heat of the room is equalized. To escape drafts the air should be admitted through a pipe pierced with small holes passing around the cornice of the ceiling. In this way a multitude of small currents are obtained, which are soon lost in the atmosphere of the room and sink down imperceptibly. Thus the whole body of air is cooled slowly but steadily and equally.

The means most frequently used, in this country, for procuring warmth and ventilation, is the cast-iron stove. Many authors have denounced this "American institution" as unhealthy, pernicious, and actually poisonous; and such, in too many cases, it continues to be in the households where it is used. But all this may be changed. The stove may be so arranged as to form a healthy, as well as a convenient and economical, means of heating a room. It is especially available in cases of comparatively small and isolated rooms, which have little connection with other apartments, and consequently little ventilation in the winter, other than that which we shall describe.

The essential things to contrive in the case of a cast-iron stove is, that a supply of air shall be introduced directly from the external atmosphere; and that the impure air shall be carried away through an opening near the floor. For the first purpose a tin pipe, of three or four inches in diameter for an ordinary sized office or

sitting-room, should be carried through the wall or an upper window pane, along the ceiling of the room to a point above the stove. Through this pipe, which needs no damper, the fresh, cool air from without is drawn in by the draft created by the flue. It falls upon the heated stove, and radiates thence, thoroughly warmed, toward the sides of the room. But the impure air—how is this to be got rid of?

Important as it is, in this particular case, to have the fresh air come from above, it is equally important, in this and in every case, to have the foul air expelled below, at the level of the floor. The warm air supplied from above, will crowd down toward the floor, in spite of its natural tendency to rise, the warm air which is charged with carbonic acid. After warming our feet upon its way, it will then escape through a register placed at the level of the floor, while more fresh, warmed air comes pouring in from above. In this way a constant circulation is kept up; while the little inward drafts of cold air from the doors and windows are prevented. These drafts are more dangerous, because they are local, than more general ones. You may sit in a cool breeze without risk, when a small current of the same air, pouring through a crack in the window upon your back, might be highly dangerous.

We have thus attained warmth and ventilation from our much-abused stove. With these desiderata we need not fear the dangerous gases that are said to be transmitted from the burning coals through the very iron of the stove itself.

A system of perfect ventilation is one that causes a constant change of the air in the room, and by means of which the upper stratum of air is never warmer than

the lower stratum. This may be accomplished very cheaply, while the house is building, in the following manner: Make a flue with the capacity of twenty-four square inches, say two by twelve inches. Place this flue between the studding. It should be the same length as the height of the stay. The lower end of the flue must open externally through the water-table or base board of the outside sheathing, while the upper end opens internally at the ceiling. Through this flue a constant draft occurs, which carries fresh air into the upper part of the room.

Another flue of the same size must be provided, the lower end of which will open into the room through the base, or mop-board, while the upper end extends to the cornice, or, better still, to the ridge of the roof. The upper end must open externally. Through the last flue there is also a constant draft which carries the air from the lower part of the room, while fresh air enters at the upper part. This plan is the most perfect of any with which we are acquainted, as by this method the temperature is equalized in all parts of the room.

Some one has wisely said: Instead of asking ourselves, with how little fuel can I warm my house, the question should be, How much can I afford to pay for fresh supplies of air, moderately and equally warmed, and distributed without waste?" If you have a grate in your room, in which you do not need a fire, be assured that it will, if left open, carry off much impure air, which you would otherwise breathe, and that the sum of your health and happiness will be greatly increased by leaving it open, even during the coldest weather. It is an excellent ventilator, and the extra heat you will require on account of its use may prove much cheaper than the fee of your physician.

One of the most distinguished physicians of New England ascribes the fearful increase of cases of paralysis to the use of stoves in close rooms, particularly in sleeping apartments.

There is no doubt that all ordinary modes of burning anthracite coal pour into our rooms so much of the inodorous, tasteless, poisonous carbonic oxide, that we can hardly have too much air with which to dilute it.

Never live in a house which has not windows or doors on both sides, through which you can, if desirable, cause a complete and thorough draft.

A remarkable fact in connection with good ventilation is that men will eat more when they have plenty of fresh air than without. Dr. Reid mentions that men in large manufacturing establishments have struck for higher wages when a good system of ventilation has been introduced, as their former wages were insufficient to procure the increased amount of food demanded by their improved appetites.

In summer the parlor should be aired every day, and thrown open broadly to the sunshine, whether needed or not. In living rooms where people often gather, ventilation is not complete unless such a current of air passes through them as to continually change the air.

In the sanitary arrangement of houses, even for the richer classes, the ventilation of cupboards is neglected. In places let out as tenements, closets are the receptacles for bread and the fragments of various other kinds of food. Often the dirty clothes are put away in these places waiting for the washing. It is, therefore, most important that air should be plentifully passed through such corners; generally, however, there is but little arrangement made for this purpose. The doors are kept

close without any perforation. There are no ventilators in the walls, and, in consequence, those places become cases of polluted air, which, when the doors are opened, escapes over the apartments. This defect is visible in nearly all houses of old date; and while looking at some dwellings of recent construction, it is seen that, although care has been generally taken to ventilate stair cases and rooms, the cupboards are in this respect neglected.

In ventilating attics holes may be bored under the cornice, to communicate with the spaces between the rafters and over the ceilings, and then one or two small wooden ventilators on the roof will be sufficient to insure a constant current of air over the entire upper story of the building. Also, small ventilating registers placed in the ceilings would—in connection with the others—insure the most thorough ventilation of the rooms. Of course, the holes in the cornice could be closed in winter.

CHURCH VENTILATION.

Many persons have gone to church, taken cold, gone home, and died in a few days, from sitting in an ill-warmed or ill-ventilated church, arising from the inattention or ignorance of sextons, or indifference of church officers. Perhaps three persons out of four, who attend divine service on the Sabbath day, are conscious, within two minutes after taking their seats, that they have been in a hurry; that both mind and body have been more or less in a turmoil, they have been hurried in getting to church in time; the result is, they are overheated; that is, the body is in a state of warmth considerably above what is natural; and if in this condition they sit still,

even for ten minutes, in an atmosphere cooler than that of out-doors in summer, or below 60 degrees at any time, a cold is the result, slight or more severe according to the vigor and age of the individual.

Many a person has taken cold and died of pneumonia in three or four days, although in perfect health previously, by sitting a few minutes in a fireless room in winter time. The danger is still greater if the room has been closed for several days; this is specially applicable to houses of worship. Within a few minutes after benediction, at the close of the Sabbath services, the house is shut up, doors, windows, and all; the atmosphere of the building has been saturated with the breath of the worshipers; as it becomes gradually cooler, this dampness condenses and falls toward the floor; so does the carbonic acid gas, which is what becomes so unpleasantly perceptible on entering a sleeping chamber after a morning walk, and there is experienced a sepulchral dampness and closeness enough to chill any one on first entering the church, after having been closed several days. We once knew a gentleman, who was something of an invalid, to take a chill and die in a short time, from entering a warehouse in December, which had been closed for a week or two.

People are beginning to ventilate public halls, so that one can sometimes hear a lecture without being obliged to inhale other people's cast-off breath with its foul gases; but churches generally hold close communion, and with a most brotherly pertinacity the same mouthful of air is breathed by the whole congregation. Sister Brown throws it off her lungs with a few seeds of consumption in it, and then brother Jones takes it into his chest, and gives it back with a tobacco flavor, and so on

round, each one supplying from his or her store house some animal matter to make the precious little morsel of breath, shut up within four walls, good and thick for family consumption. If their minds do not become assimilated by a communion of faith, their bodies might, by the general union and communion, and mixing up of the gases and vapor of their mortal part. People who would not eat out of the same dish with another, or sip with the same spoon, think nothing of taking into their lungs, and incorporating with their blood, the particles of foul matter which have passed off from each other's system.

We would much rather submit to an indiscriminate use of tooth brushes than of breath. It would not appear half so disgusting to put another person's tooth brush into one's mouth, as it would be to take his cast out breath into one's lungs; and in a crowded church, without great care of ventilating, that process is regularly going on.

Ventilate your meeting-room. Sleeping in church is due to bad air oftener than bad manners.

Many a farmer and house-keeper wonders why it is that they must needs take a nap every Sunday in sermon time. When the parson gets comfortably in the second or third head of his discourse, and his congregation have settled into the easiest position to listen, gentle sleep begins to steal over their faculties, and the good man is surprised at finding his argument less cogent than it seemed when prepared in the solitude of his study. At home, the busy matron never thinks of eleven o'clock in the morning, and the man of business would consider his sanitary or common sense sadly called in question should a friend propose a half hour's nap at that hour of the

day. Nevertheless, they both sleep like kittens in their pews, and logic, rhetoric, eloquence, are alike wasted in the vain attempt to rouse their sluggish souls. The question of the poet, so often sung in our assemblies,

“My drowsy powers, why sleep ye so!”——

is exactly in point, and we propose as an answer, because we are all breathing carbonic acid gas—deadly poison: because the sexton didn’t let the foul air of last Sunday’s congregation out of the doors and windows, and let the fresh, pure air of heaven in.

Look around at the audience; that feverish flush isn’t heat, it is poison. The lady nodding over there, her nose and cheeks like a scarlet rose, is not too warm, for the thermometer does not stand over 70 degrees; she is partially suffocated; what she wants is fresh air. The hard working mechanic and farmer does not sleep because he watched with a sick child last night, but simply for the want of oxygen to keep the flame of intellectual and physical activity brightly burning.

Nobody can rise on wings of faith in a poisonous atmosphere. Oxygen and religion cannot be separated in this unrighteous manner. We cannot live in conformity to spiritual laws, while in open violation of the physical.

Is your sexton a man of intelligence sufficient to understand the necessity and reason of ample ventilation? Does he know that every human being vitiates, at the least estimate, four cubic feet of air every minute? Linger when the congregation leaves, and see if he shuts every door and window tight to keep in all the heat till evening service; then see how thin the lamps burn in the vitiated air; how hard the minister tries to raise

himself and listeners to the height of some argument, and how stupid they are—nothing but bad air.

Now for the remedy, which costs labor and money; for ventilation is a question of dollars and cents. Saturday the sexton should be instructed to open all the doors and windows to let out all the dead and foul air, and let in such as is fresh. It takes no more coal on Sunday morning to heat the church to 70 degrees because of this purification. Sunday noon, let the opening of the church be again thrown wide—warmth and bad air will alike disappear, and though extra coal may be required to raise the temperature, the minister will preach so much better in consequence, and the hearers will listen with such increased relish to the sacred word, that the loss of the pocket will be infinitely compensated by the gain of the soul.

The first thing to be considered in ventilating any apartment is the introduction of fresh air. But while a room is already filled with air, an additional volume can not be brought into it, unless it is forced in by machinery. Motion is essential to perfect ventilation. All the air in a room must be removed every few hours, and an equal quantity of fresh air introduced. So long as there is draft to draw out the foul air, and to introduce fresh air, a room may remain filled with an atmosphere that is poisonous to animal life.

The large room in Cooper Institute, where the Polytechnic Society and the Farmers' Club are accustomed to hold their weekly sessions, was formerly so badly ventilated that people who always want pure air recoiled from attending the meetings of those societies. But that room may now be filled with an audience to its utmost capacity for a day, and no one will be able to perceive

any impurity in the atmosphere; neither will a person sitting in any part of the room perceive a draught of either cold or warm air. The ventilation is as complete as could be desired. About every hour the entire volume of air in the room is changed by the following arrangement: The rostrum, or platform, was raised bodily three inches above the main floor, and a large aperture was made in the chimney, through which the foul air could pass out. Then one outside window was raised a few inches, and a box tube, about one foot square, made of boards, was extended from the window to the "nest" of steam heating pipes, employed to warm the room. The tube allowed a stream of pure air to flow directly to the nest of steam-pipes, where every particle was warmed. Of course the warm air would rise to the wall overhead, and flow to the further side of the room. By this means a movement in the air is obtained, and the equilibrium of the atmosphere is disturbed. Consequently a current of foul air must be started immediately out of the flue beneath the rostrum.

One of the cheapest and most effectual ways to ventilate a school-room would be to have perforated baseboards, so that the foul air could enter the large spaces between the joists, and thence pass away through a large chimney flue. Then a current of fresh air could be conducted in a pipe to the stove, or heater, so as to produce a current. By this simple and cheap arrangement every pupil in a large room could always be supplied with pure air of an agreeable temperature. In case there is no flue or ventilating shaft, a wooden flue, about eighteen inches square, could be erected at one end of the building, having an aperture in the side for the foul air to escape. But it is always more satisfactory to open a pas-

sage into a large chimney, as the heat and smoke will promote a draught from the room to be ventilated. If fresh air can be forced into a room by any means, when there is no flue, the lower sash of every window may be lifted an inch or more, to provide passages for impure air to escape. By this means any living room can always be supplied with pure air at small expense.

Much as has been said on ventilation, the majority of school-houses remain unventilated, or at best ill-ventilated. Any apparatus for this purpose, other than windows and doors, is still the exception. Bad air is the greatest annoyance encountered in visiting schools. To the children constantly breathing poisonous gas, the permanent consequences, besides the present lassitude and restlessness, are most injurious. In visiting eight schools in Millbury, Mass., a few days since, I enjoyed the luxury of breathing pure air in each. The cause of this rare phenomenon was not any superior apparatus, but the following printed regulation of the school committee, conspicuously posted in every room, which I beg leave to commend to teachers and committees: "The windows that will not directly admit the air upon the children, should during the school session, be dropped a few inches from the top; and at recess, and at the close of the school, both morning and afternoon, all the windows should be thrown wide open for a few moments so as to change the air of the school-room and effectually remove from it all impurities."

The Hartford Post thinks that ill-arranged and ill-ventilated school buildings and wrongly managed homes, and not excessive study, are the chief causes of the breaking down of health in school children.

Dr. Hamilton, of Buffalo, says: "We need for our

dwelling more ventilation and less heat, more out-door exercise, more sunlight, more manly, athletic, and rude sports, more amusements, more holidays, more frolic and noisy, boisterous mirth." These will result in a greater abundance of fresh air in our dwellings. A proper temperature as the first condition of mental activity, and the removal of carbonic acid, which "lowers the vitality and kills with indefinite warnings," are prime conditions for the development of a nation that is yet to rule the world. Let us abolish the strangling of innocent children in our schools by viewless ropes of poisoned air.

CLEANLINESS.

"Cleanliness next to godliness," has been so often repeated that it might be supposed that urging the necessity of cleanliness in the habits, person and home, would be superfluous; but as godliness is neglected so also is cleanliness; and there are thousands on every hand that are neither holy or clean. These qualities are so closely allied that it is scarcely possible to be one without the other.

Cleanliness is one of the first requisites for the enjoyment of religion, health, social prosperity and happiness. It is enjoined upon mankind in the Holy Scriptures, by the mandate given to God's chosen people, and its connection with their religious rites and ceremonies; and also, by the teachings of modern systems of religion; and physical purity has at all times been emblematic of that moral purity so necessary to a perfect life and character. The standard of religion and morals is invariably lowest among the filthy and ignorant; and in every step

taken in religious culture we find that cleanliness is its inseparable companion—thus demonstrating that one cannot exist without the other.

The effect of the want of cleanliness upon the health is a point upon which all should be informed; but the conclusion to be arrived at by observing the habits of mankind would almost warrant the supposition that they are not. Personal cleanliness is of the first importance in the preservation of health; and one need not be thoroughly informed in physiological science to know that the thirty ounces of impure matter that is daily exuded from the skin of an adult, will, if retained by improper clothing or otherwise, be again absorbed into the system, and ultimately produce disease. Neither need one be learned to know that soiled linen, bed clothing and the absence of ventilation, all have their effect upon the general healthfulness of individuals and families.

Much to be admired is the shrewdness of hydropathists and water cure establishments, for with a perfect knowledge of the virtue of cleanliness in restraining disease and restoring health, their remedies are but the application of this principle, externally and internally. The want of cleanliness in the preparation of food, and in the surroundings, is a powerful agent in continuing disease in its most revolting and terrifying forms; and as we instinctively shun approach to the filthy, squalid and diseased, so should everything be avoided that has a tendency to bring about such results.

Uncleanliness in the dress, habits and person, affects individuals quite as much socially as in other respects. No one should expect to maintain a high position in the esteem of his friends, who is habitually addicted to either of these faults. However much one's talents or intel-

lectual attainments may be admired or appreciated, or however much they may excel in other qualifications for being agreeable companions or friends, a disregard of the feelings of others, by a want of attention to personal cleanliness, will render these qualities comparatively worthless to the possessor. Without friendship, happiness is unknown; and the more refined and rational are social pleasures, the happier are those fitted for their enjoyment; but neither home, health or happiness can be enjoyed without a proper regard for ourselves and the feelings of others in the maintenance of habits of cleanliness in every transaction in life.

It is perfectly true to say that cleanliness is to the body what religion is to the soul, as sure a protector against many of the bodily ailments, as good principles inspired by love to God are the surest protector against temptation and sin.

One of the greatest evils to the human race is contagious or infectious disease, or disease that without being contagious is epidemic. A contagious disease is communicated directly from one person to another. An infectious disease is one the germs of which may be carried through the air. Epidemic means prevalent—affecting numbers of people at the same time. The most terrible forms of such diseases are the Asiatic cholera, small-pox, typhus, yellow fever and the plague.

As far back almost as human knowledge goes, pestilences have been known. A plague was sent against the children of Israel when they were wandering in the wilderness. We read of similar visitations in the oldest works of the most ancient historians. Again and again has a plague rolled over the earth, usually from east to west, realizing the terrible idea of the destroying angel

sent by the Almighty to punish a sinful race for their misdeeds.

There is abundant reason to believe that the great plague which swept over Europe in the fourteenth century, known as the black death, and which certainly reached as far to the north and west as Ireland and Iceland, produced effects that bear directly upon our daily life in America, though at that time this continent was unknown to Europeans.

The plague returned to its old haunts frequently and fatally, as late as the seventeenth century. The last time it visited England was in 1665, when the great plague occurred. One year after, in 1666, the great fire of London destroyed the noisome and filthy places where the destroyer used to nestle, and from which it spread to more respectable quarters. Never again did it gain a foothold in London.

These epidemic diseases are the children of filth, and thrive only where filth is. With the spread of civilization, the cleanliness of the human race has steadily improved, and the great enemy, disease, has been just as steadily crowded to the wall. The habits of the English people only two centuries ago were such as would now be regarded as disgusting. Cholera can be and is made a terror for people in dirty cities only. Yellow fever has often been barred out of cities by thorough purification of the streets, sewers and houses.

It is of course not true that every man who attends to personal cleanliness is insured against epidemic disease; he can only render himself less liable to infection. The assistance of whole communities is needed to prevent the introduction of such destroying agents.

Probably if there should be as great improvement in

the direction of cleanliness in the next two hundred years as there has been since the great plague of London, epidemics would be wholly unknown except among the irreclaimably dirty people of Asia and Eastern Europe.

Water is the great purifier. If used intelligently, it makes the most densely peopled quarter of a great city as secure against a pestilence as a residence on a mountain-top.

Famine brings pestilence; and consequently food, wholesome and in abundance, is necessary.

Fortunately, since the days of railroads and steamboats, it is so easy to get food from one part of the world to another, that famine is not greatly to be feared in any civilized country.

But it is easier to be dirty than to be clean, and in this is the danger from the terrible scourges of disease. Hence the chief security must come from a free use of water in cleansing, and in such systems of ventilation as will let the pure air into all the dark and dismal dens that are still too common.

Sidney Smith said: "The degree of civilization and refinement of a family or a nation is correctly indicated by the quantity of soap it uses." Later observers and writers on health and disease fully approve this utterance of the famous wit and divine. "Cleanliness is next to godliness," and this contiguity of the two virtues is not affected in any way by the fall or rise of the mercury in the thermometer. The skin is the grand outlet of excrementitious matter from the body; it contains 28 miles of tubing. This tubing, when obstructed, cannot perform its office, and sickness follows. Cold hands and feet, the result of imperfect circulation, are often cured by keeping the skin in a perfectly healthy condition.

Want of cleanliness has more to do with the prevalence of croup and diphtheria in cold weather than many people think. Our city physicians in consultation over the cause and cure of diphtheria, give prominence to cleanliness as the best preventive. Not long since, in a fashionable house in New York, three children died of this fearful disease. Upon careful inquiry it was found that the carpets of the house, which was rented furnished, had not been taken up or dusted for many years. Curtains, carpets, and woolen garments which cannot be washed may be cleansed by thorough airing and beating, and however clean they may seem to the eye, they should undergo this process frequently. Especially is this true of blankets and other bedding.

Perfect cleanliness is a luxury, and, like other luxuries, not easily attainable by the very poor. They cannot afford the changes necessary, or the comfortable warmth and surroundings which make the bath enjoyable even in winter, and therefore it is that disease infests their dwellings. Herein is a field for the philanthropist. The bath-room is now as much a part of every first-class city and country house as is the bed-room or the sitting room, and to this improvement is in part due the diminished rate of mortality in the present and past generations. Hand in hand with personal cleanliness goes ventilation, and health follows in their train.

In 1872 several cases of typhoid fever occurred in families living in Leeds, England. These families were dotted about in different localities without any apparent regularity. On close examination the physician found that every family attacked was supplied with milk by the same man, but his family had uninterrupted health. They used none of the milk themselves. He obtained

his milk from a farm-house in the country. On visiting the farm it was ascertained that there were six persons in the family lying ill with typhoid fever, in a room adjoining the one in which the milk-cans were kept, and that the woman who handled the milk also nursed the sick. During the summer of 1873 a dozen or more inmates of a boarding-school were taken ill, showing typhoid symptoms. On examining into the milk supply, it was ascertained that the water used to wash the milk vessels came from a well into which was leaking a water-closet pipe.

A neat, clean, fresh-aired, sweet, cheerful, well-arranged house exerts a moral influence over the inmates, and make the members of the family peaceable and considerate of each other's feelings and happiness. The connection is obvious between the state of mind thus produced and respect for others, and for those higher duties and obligations which no laws can enforce. On the contrary a filthy, squalid, noxious dwelling, in which none of the decencies of life are observed, contributes to make its inhabitants selfish, sensual and regardless of the feelings of others; and the constant indulgence of such passions render them reckless and brutal.

A lady brought a child to a physician to consult about its precarious health. Among other things she inquired if he did not think the springs would be useful.

"Certainly, madam," replied the doctor, as he eyed the child, "I haven't the least hesitation in recommending the springs, and the sooner you apply the remedy the better."

"You really think it would be good for the dear little thing, don't you?"

"Upon my word it is the best remedy I know of."

What springs would you recommend, doctor?"

"Any will do, madam, where you can get plenty of *soap and water*."

THE SKIN AND BATHING.

Physiologically considered, it would seem almost impossible to overestimate the importance of the functions of the skin. Consider for a moment the complex apparatus by which these functions are carried on, and the enormous amount of work accomplished through it. If the reader will examine his hand with a simple jeweller's lens, or with any of the cheap pocket microscopes, he will notice that there are delicate grooves crossing the furrows, and that a small orifice exists in the centre of each of them. Some of these orifices occupy nearly the whole of the groove, and are the openings of the perspiratory ducts, from which may be seen to issue, when the hand is warm, minute shining dots of perspiratory matter.

But perspiration is not held in the body as water is in a sponge, which can be squeezed out by pressure or by throwing it about; neither does it exist ready formed within us, as are the juices in apples and oranges. Upon the under surface of the true skin there are a multitude of little cavities, and in them are minute *glands*, which resemble ravelled tubes, formed of basement membrane and epithelial scales, with true secreting surfaces. It is the work of these little organs to receive the impure blood which is constantly brought to them through a network of arteries, and *purify* it and thrust out of the system the waste or offensive matter which is separated

from it. These impurities come along in the blood, and are cast out through the perspiratory ducts while dissolved in that medium. After the blood is thus cleansed, another set of vessels are ready at hand to carry it back into the interior of the body, to become again and again loaded with impurities, which the little glands are tireless in extracting and removing. What organs in the human body subserve higher or more vital purposes than these? Does the liver or the stomach, or do the kidneys or the lungs, stand in more intimate relation with life than these little glands? We think not. Their size varies in different parts of the body. In the palm of the hand they are from 1-1000 to 1-2000th of an inch in diameter, while in the arm-pits they are 1-60th of an inch. The length of the tube which constitutes both gland and duct, is about a quarter of an inch, and the diameter is about 1-1700th of an inch. It is a curious fact that the ducts, while traversing the true skin, are perfectly straight; but as soon as they enter the tough scarf-skin, they become spiral, and resemble a cork-screw, so that the perspiration is propelled around the tube several times before it is ejected. Now, we are talking about *small things*; but so long as we confine our descriptions to a single duct, we utterly fail to realize their minuteness. Let us look at them collectively. On every square inch of the palm of your hand, reader, there are at least 3,500 of these perspiratory ducts. Each one of them being one quarter of an inch long, we readily see that every square inch of skin surface on this part of the body has 73 feet of tubing, through which moisture and effete matter are constantly passing, night and day. The ducts, however, are shorter elsewhere; and it will be fair to estimate 60 feet as the average

length of the ducts for each square inch of the body. This estimate gives (reckoning 2,500 square inches of surface for a person of ordinary size) for these ducts an aggregate length of 28 miles.

The amount of liquid matter which passes through these microscopical tubes in twenty-four hours, in an adult person of sound health, is about sixteen fluid ounces, or one pint. One ounce of the sixteen is solid matter, made up of organic and inorganic substances, which, if allowed to remain in the system for a brief space of time, would cause death. The rest is water. Beside the water and solid matter, a large amount of carbonic acid, a gaseous body, passes through the tubes; so we cannot fail to understand that they are active workers, and also we cannot fail to see the importance of keeping them in perfect working order, removing obstructions by frequent application of water, or by some other means. Suppose we obstruct the functions of the skin perfectly, by varnishing a person completely with a compound impervious to moisture. How long will he live? Not over six hours. The experiment was once tried on a child at Florence. Pope Leo the Tenth, on the occasion of his accession to the papal chair, wished to have a living figure to represent the Golden Age, and so he gilded a poor child all over with varnish and gold leaf. The child died in a few hours. If the fur of a rabbit or the skin of a pig be covered with a solution of india-rubber in naphtha, the animal ceases to breathe in a couple of hours. These statements are presented in order that we may obtain some idea of the importance of the functions of the skin. We have, however, only spoken of one of its offices, that of aeration of the blood; to present the matter fully, we should speak of absorp-

tion, a matter of less moment, though very important. But we must pass this, and consider briefly the subject of bathing in some of its sanitary aspects.

If from any cause the orifices of the perspiratory ducts become partially obstructed or closed, the whole system suffers the most serious derangements. Those important secretory organs, the liver and kidneys, become greatly embarrassed with additional burdens thrown upon them, and a general feverishness pervades the body. This is disease, and the cause of it must be removed, either by bathing the entire surface with water, or by exciting the glands to unusual activity so as to force a passage through the obstructions. If one pint of liquid material, containing one ounce of solid excreta, is thrown out upon the surface of the body and into the clothing every day, it is evident that some care is needed to keep the body clean and the ducts in working condition. In civilized society, this need is recognized, and frequent bathing is resorted to by large numbers of both sexes. The question, "How often should the body of persons in health be bathed?" is an important one, and great difference of opinion exists with regard to it. There is no doubt, however, that bathing, like all other good things, may be abused, and the good we seek from it changed into evil. Many people have been injured by too frequent bathing. As a rule, we regard once a week as often enough for all purposes of cleanliness in persons of sedentary habits, and once in two weeks for those who are engaged in more active in-door pursuits. For those who are at work in the open air, like farmers and some mechanics, the health does not seem to suffer if bathing is resorted to only at quite long intervals, or not oftener than once or twice during the year. A frequent

change of the inner garments is of the highest consequence of all persons, and also the thorough airing and changing of bed-clothing. Consider, in the light of the facts we have stated, how uncleanly and injurious is the habit of wearing flannels or under-clothing for several consecutive weeks without washing, as very many do. Seven pints of impure liquid, in the form of vapor, pass into the clothing every week from the skin, and half a pound of solid matter accompanies it. Much of this becomes entangled in the fabric, and remains there, a source of impurity, until removed by the labor of the laundress.

Regular bathing, so far as the people of this country are concerned, is certainly a habit of quite modern adoption. The fathers and mothers, and grandfathers and grandmothers, of those who have reached middle life seldom or never bathed, except in the warm months of summer. Their dwellings afforded no conveniences for the act, if they felt the need of performing it. As a general thing, the health was unaffected by this omission. Why was this? Because of their occupations and their methods of living. They were active workers, they wore but a small amount of clothing, they lived much in the open air, and their dwellings were without stove and furnace heat. If any one in these days will exercise in the open air, so that each day he will perspire moderately, and if he will wear thin under-garments or none at all, and sleep in a cold room, the functions of the skin will suffer little or no impediment if water is withheld for months. Indeed, bathing is not the only way in which its healthful action can be maintained by those living under the conditions at present existing. Dry friction over the whole surface of the body, once a day,

or once in two days, is often of more service than the application of water. The reply of the centenarian to the inquiry, to what habit he attributed his good health and extreme longevity, that he believed it due to "rubbing himself all over with a *cob* every night," is significant of an important truth.

If invalids and persons of low vitality would use dry friction and Dr. Franklin's "air-bath" every day for a considerable period, we are confident they would often be greatly benefitted. Cleanliness is next to godliness, no doubt, and a proper and judicious use of water is to be commended; but human beings are not amphibious. Nature indicates that the functions of the skin should be kept in order mainly by muscular exercises, by exciting natural perspiration by labor; and delicious as is the bath, and healthful, under proper regulations, it is no substitute for that exercise of the body without which all the functions become abnormal.

HINTS ON BATHING.

The most cleansing bath is a warm one of from 96 deg. to 100 deg., into which the body is immersed. If cleansing alone be the aim, the hotter the water the better—up to 108 deg. It expands the pores, dives well into them, and increases the circulation for the time being. But since it is an unnatural agent, it exhausts the physical powers and leaves us prostrate. For health, therefore, it should be sparingly indulged in, except in persons of rapid and heated circulation. Even with such it should be used with discretion, and the time of remaining in the bath should never exceed a few minutes. The

cold bath of from 60 to 70 deg., on the other hand, cleanses less, but invigorates more. It should therefore be avoided by persons of full temperament, and becomes really dangerous after eating or even after a long rest following a heavy meal. If you have supped largely over night, or been foolish enough to drink more than your usual quantity of stimulating liquids, you should content yourself with passing a wet sponge over the body. A tepid bath, varying from 85 to 95 deg., is perhaps the safest of all, but we must not lose sight of health in the desire for comfort.

Dr. Mayo says that "at night, warm water should be employed; in the morning cold. The frame, after the exhaustion of the day, is in a condition to be better for the soothing influence of warm bathing. The whole person should, preparatory to retiring to rest, be laved with warm water, and afterward a moderate glow should be produced by gently drying with towels.

"It has been said that cold water, used at night, has the advantage of preventing the feet becoming tender. The reverse is the fact. Tenderness of the feet is much sooner and more surely remedied by the use of warm water than cold. The direct purpose of bathing is better obtained by warm than cold water. Nevertheless, there are some who are compelled to use cold water for their feet at night; if they use warm water there is no reaction, and their feet and ankles become painfully chilled and deficient in circulation. But the morning is the proper season for the employment of cold water, the temperature of which, however, should bear a relation to the time of year and to the temperature of the weather, as well as to the strength of the person using it. Sometimes, therefore, it is better to use water, in

the morning, tepid, just as at night it may happen, for various reasons, to be desirable to avoid the relaxing effects of water too warm. A person in health and strength is better for having the entire person bathed with cold water in the morning, followed by sufficient friction to produce a general healthy glow.

In these simple directions two effects are contemplated: one niceness of person, and the other, a stimulating or soothing influence on the nerves, or on the system generally.

Ammonia baths are becoming popular, particularly among those invalids who need, but cannot procure, the natural mineral water baths. The ammonia bath is easily arranged. To one quart of tepid, soft, or even hard water of grateful temperature, add from one-half to one tablespoonful of aqua ammonia, as sold by apothecaries. The water should feel oily on the fingers, and have a slight odor of ammonia. Use a soft, absorbent cloth of cotton or linen, and bathe every part of the surface of the body successively. Invalids may use this bath daily with benefit. Persons in ordinary health should not employ it oftener than twice in one week.

The most healthy, and one of the handsomest men I ever saw, and one who at sixty had not a single gray hair, was a German, who, his diet being moderate, used to bathe in running water at all seasons, breaking the ice in winter for his plunge. Of the shower-bath I will say nothing, because I feel that to recommend it for general use is dangerous. The best bath for general purposes, and one which can do little harm, and almost always some good, is a sponge bath. It should consist of a large, flat metal basin, some four feet in diameter, filled with cold water and a large coarse sponge—the coarser the better.

The water should be plentiful and fresh—that is, brought up a little while before the bath is to be used; not placed over night in the bed-room. Sea-water, we may here observe, does not cleanse, and a sensible man who bathes in the sea will take a bath of pure water immediately after it. This practice is shamefully neglected, and I am inclined to think that in many cases a sea-bath will do more harm than good without it, but if followed by a fresh bath, cannot but be advantageous.

Sea-bathing should not be had recourse to by persons of enfeebled frames, because the organs are too weak to ensure that pleasant re-action of feeling—that sense of warmth which diffuses itself all over the body—consequent upon immersion. Invalids and persons of nervous temperament should never resort to sea-bathing except under the direction of a medical man.

People who go to the seashore in the summer months should take advice of common-sense on the subject of surf bathing. Many inexperienced persons, by not doing this, have laid the foundation for life-long invalidism. Staying too long in the water, getting chilled while dressing afterward, and neglecting to wet the head before wetting the feet, are among the most fruitful causes of after repentance. It is dreadful the ignorance and recklessness of parents on this subject, with regard to their children, whose constitutions and needs are as utterly ignored as if there were neither sickness nor death in the world.

Sea-bathing is a valuable tonic if properly taken, unless there is too much debility.

The origin of sea-bathing as a curative is uncertain, and some people declare it a farce to go to the sea-shore for health. When reduced to plain common sense

essence, sea-bathing means only early hours, simple living, plenty of exercise, and a good deal of open air washing; and if the same laws were adopted here, they would answer equally well.

The following we take from the London Sixpenny Magazine:

On first plunging into cold water there comes a shock which drives the blood to the central part of the system. But immediately a reaction takes place which is assisted by the exercise of swimming, producing, even in water of a low temperature, an agreeable warmth. The stay in the water should never be prolonged beyond the period of this excitement. If the water be left while the warmth continues, and the body immediately dried, the healthy glow over the whole surface will be delightful.

To remain in the water after the first reaction is over, produces a prolonged chilliness, a shrinking of the flesh, and a contraction of the skin, by no means favorable to health or enjoyment; for it is only in water thoroughly warmed by the summer heats, where we may bathe for hours with impunity.

Certain precautions are necessary. Moderate exercise, by summoning into action the powers of the system, and quickening the circulation, is better than inactivity. We should never go into water immediately after a meal, nor while the process of digestion is going forward. Nor should we plunge into the water when violently heated, or in a state of profuse perspiration; such imprudences are often fatal, especially if the water be unusually cold. If too warm, the temperature of the body may be reduced by bathing the wrists, and wetting the head.

Before meals rather than after, and especially before supper, are proper seasons for bathing. The heats of

the day are to be avoided, but in hot weather, a bath is useful to cool the blood, and secure refreshing sleep. If in the middle of the day, a shaded place should be chosen, or the head protected from the sun by being kept wet, or by wearing a straw hat, as is practised by the fashionable French ladies at their watering-places.

The sea is the best place for swimming. Owing to the greater specific gravity of salt water than fresh, the body is more buoyant in it, as are other substances. A ship coming out of salt water into fresh, sinks perceptibly in the water. The difference is nearly equal to the weight of the salt held in solution.

The bottom should be hard sand, gravel or smooth stones. Sharp stones and shells cut the feet—weeds may entangle them. The swimmer must avoid the floating grass and quicksand. The new beginner must be careful that the water does not run beyond his depth, and that the current cannot carry him into a deeper place, also that there be no holes in the bottom. As persons are ever liable to accidents, cramps, &c., it is always best that boys or girls should be accompanied by those who are older than themselves, and who will be able to save them in any emergency.

RULES FOR BATHING.

Dr. E. P. Miller gives the following: Baths should not be taken within at least one hour before eating, nor within two hours after; and not within two hours before, and three hours after, is still better.

The reason for this is, that in bathing, the blood is brought to the surface in large quantities and circulates

freely in the capillaries of the skin, being drawn away from internal organs and generally diffused through the whole body, and the more freely this external circulation and warmth is kept up, the more refreshing and invigorating the bath becomes, and the greater the benefit derived from it; whereas, when the stomach has recently been supplied with food, the blood is diverted from the external circulation to the digestive organs to supply the secretions and juices necessary to carry on the digestive process.

From these facts it will be evident that if food be taken into the stomach too soon after a bath, the blood is directed to the stomach before a full reaction has taken place, thus interfering with its beneficial effects; while on the other hand, if the bath be taken too soon after a meal, the blood is diverted from the digestive organs before digestion is completed, and thus a very important function of the body is interfered with.

In cases of active congestion or inflammation, in fevers, or in severe pain and distress, it may be necessary to make water applications irrespective of this rule.

The head and face should be thoroughly bathed at the commencement of every bath. This will prevent the rushing of blood to the head and ward off unpleasant sensations.

A bath should never be taken when the body is exhausted, or too greatly fatigued by exercise, as a person in such a condition would not be likely to secure the proper reaction and warmth. Moderate exercise before a bath is usually beneficial, as it accelerates the circulation and secures a comfortable degree of warmth, which is always desirable before taking a bath. There is no danger from taking a general bath while in a perspira-

tion, providing no fatigue accompanies it; for the sitz and foot baths, however, it is better that the body be warm, but not perspiring.

All general baths should be taken briskly, and the bather himself, if able, should rub vigorously that he may quicken his circulation and respiration, and thus secure the warmth and glowing reaction that is so essential after every bath; this should be observed not only while in the bath but in rubbing dry after it.

For drying the body after a general bath, a strong linen or cotton sheet is much better than towels; this should be for an adult at least two yards square, so as to envelop the whole body like a cloak, and with it he should be rubbed or rub himself till thoroughly dry—by using the sheet for wiping, the body is protected from the air, the escape of heat is prevented, and there is much less liability to feel chilly afterward—towels will suffice, however, for all local applications.

At the completion of the bath, the bather should immediately dress, and, if able, exercise in the open air, or engage in some active employment. If not able to exercise, it is well to cover up warm in bed for an hour or so, and sleep, if possible.

Very nervous persons or those whose digestion is much impaired, or circulation is imperfect and feeble, or temperature is below the normal standard, should be careful not to use cold water to any great extent in bathing; it may have a temporary beneficial effect, but in the end their sufferings will be likely to be increased.

Feeble invalids, consumptives, persons subject to hemorrhage of the lungs or the stomach, those who have just passed the crisis in fevers or other acute diseases, those suffering from profuse discharges, such as suppura-

tions, diarrhea, cholera, etc., and also females during the menstrual period, should avoid the use of cold water, as well as the excessive use of it in any form.

Always use a thermometer to determine the temperature of baths for invalids.

An invalid should not bathe in a room with the temperature below 70° , and for most persons 80° or 85° would be better, provided there is good ventilation.

To these we add the rules given by Dr. R. T. Trall, as follows:

Never bathe soon after eating.

A full bath should not be taken less than three hours after a full meal.

Do not take any cold bath when in a state of chilliness or fatigue.

Always have the feet comfortably warmed, by fire, hot water, or exercise, at the time of taking any cold bath.

If inclined to headache, wet the head with cool water before bathing.

Never drink cold water just before bathing.

Do not eat soon after bathing. An hour should elapse after a full bath, and half an hour after a local bath before taking the meal.

Local baths, as hip, foot, etc., may be taken an hour after a light, and two hours after a full meal.

Patients who are able should exercise before and after bathing. If not able to exercise, and inclined to chilliness, they should cover up in bed for an hour after bathing.

No strong shock, by means of the shower or douche, should be made on the head.

After bathing do not sit in a draught of cold air, nor allow the feet to become cold.

During the menstrual period no cold baths should be taken.

Avoid all very cold or very hot baths in all cases of great debility, local congestions, or determinations of blood to particular parts; also all processes which disturb the circulation, as shower, douche, and plunge baths.

Great heat of the body, or perspiration, is no objection to any form or kind of bath, providing the respiration is not disturbed, nor the patient in a state of fatigue.

When two or more baths are administered daily, the principal and coldest one should be taken in the fore part of the day.

All full baths, except the warm, are better in the morning or forenoon than in the afternoon or evening.

When baths are taken regularly every day, they should be omitted occasionally, as one day in a week, or two or three days in a month.

Whenever the patient feels dependent on any particular form of bath, and persists that he cannot do without it, some other should be substituted for a few days.

Patients should never take a bath so cold that fatiguing exercise is necessary to "get up reaction." The better way is to use water of a milder temperature.

Very feeble persons should have the water for all bathing purposes at nearly the neutral temperature, which is ninety degrees, varying but a few degrees above or below.

Pleasurable sensations for the time are no evidences that the bath is useful. Very cold or very hot baths may be succeeded by agreeable feelings, but be very wasteful of vitality. The same is true of stimulants, nervines, and narcotics.

The temperature of the bathing-room should always

be comfortably warmed and well ventilated. For invalids the temperature should be seventy to eighty degrees.

Dr. W. W. Hall says:

Bathe quickly, wipe dry, and walk off rapidly, all within ten minutes.

It is dangerous to bathe when tired or at bed time; hence, it is better to make a rule to bathe before breakfast, when the system has been rested by a night's sleep.

Before bathing, wash the face, hands and head in cold water.

Do not bathe within two hours of eating a full meal; death has often resulted from inattention to this rule.

Cold water baths are hurtful under all circumstances to very young or old people; to invalids, to consumptives, to those subject to spitting blood. It is the safest rule that a woman should never take a cold bath other than to rub the whole surface quickly with a soft towel, dipped in water and pressed out; lay the towel smooth on the hand, and rub quickly the whole body, within ten minutes.

The general health of mankind would be most benefited by avoiding all cold water or sea bathing, and take but one bath a week, and that in a room not under seventy degrees, on Saturday night, using warm water, soap, and a common new scrubbing brush, bristles at least three-quarters of an inch long; wet the body all over with water; then rub a piece of soap over the brush, and with it rub the body with a will, as far as can be reached in every direction, rapidly; then rinse off and wipe dry with a cotton towel at least a yard square; this leaves the skin more perfectly dry than common linen or crash towel; the whole operation should be performed within ten minutes; the water should be at least eighty

degrees; this kind of bathing certainly cleanses the skin, stimulates the surface, and leaves the body in a safe condition.

Temperature for baths—cold baths, 50°; tepid bath, 70°; warm bath, 90°; hot bath, 110°; vapor bath, 130°.

The following suggestions to bathers have recently been issued by the Royal Humane Society of London:

Avoid bathing within two hours after a meal.

Avoid bathing when exhausted from any cause.

Avoid bathing when the body is cooling after perspiration; but bathe when the body is warm, provided no time is lost in getting into the water.

Avoid remaining too long in the water; leave the water immediately if there is the slightest feeling of chilliness.

Avoid bathing altogether in the open air if, after having been a short time in the water, there is a sense of chilliness with numbness of the hands and feet.

The vigorous and strong may bathe early in the morning on an empty stomach.

The young and those that are weak had better bathe three hours after a meal; the best time for such is from two to three hours after breakfast.

Those who are subject to attacks of giddiness and faintness, and those who suffer from diseases of the heart, should not bathe without first consulting their medical adviser.

BATHING CHILDREN.

Children should have a thorough bath as often as once a week; three times a week is still better for the health of children.

ORDINARY BATH.

Take some water, neither too warm nor too cold; pour it into a wooden tub or a large earthen vessel, such as a hand-basin; which should be of about the same temperature as the intended water. It is better not to use a metallic vessel unless it is a regular bath-tub. The water should never be so cold as to make a child shiver when put into it; and be very careful not to let the child strike the cold edge of the vessel, which is apt to frighten it and give future trouble when you attempt to bathe it at another time. See that the doors and windows are closed to keep little currents of air out of the room, which are apt to give it cold. The soap, towels and clean clothing for dressing the child again, should be got in complete order, and placed conveniently for use. Remove the child's clothing as you would at night, and be careful not to alarm it by anything you do. Place it sitting in the water, and then gently and rapidly wash the entire body, using some soap. The length of time the child should remain in the water must be left to the judgment of the mother; but in no case should it be continued until its lips and fingers become blue, or its teeth begin to chatter. Take it quietly out, and with a soft, dry, or even warmed towel, begin at the face and gently dry the entire surface of the body. Do not scour the skin with a single fold of the towel, but have it doubled. If you wish you may use a coarser towel afterwards. Dress the child as soon as possible, and be careful not to move it about the room too much before it is clothed, as you must remember a person moving about undressed becomes chilled much sooner than one who is kept quiet.

In the hot weather of summer, such a bath may be

given once every day, unless there is some good reason for not doing so.

When a *bath* is ordered, a bath of *water* with soap is always meant, and in no case should mustard or anything else be used, unless you are told to do so.

SALT BATH.

This is given like the one just described, only you add as much common salt to the water as may be necessary. It is well to remember, that "salt cools water," as the saying is; so you must have the water rather warmer before the salt goes in than you wish the bath to be after the salt dissolves.

For the purpose of bathing, it will be found that the ordinary coarse salt is quite as good as what is called "rock salt."

HOT BATH.

This bath is not often necessary for infants or children, and when given, it should be by the advice of some competent person. Physicians frequently order it in certain affections of the chest, which usually occur in the cold weather; and, when ordered, do it as follows, unless a different plan is told you:—

Take an ordinary hand basin, or, if it is not large enough, use a small wooden tub, and stand it in front of a fire until the inside becomes quite warm. Then pour into it the water, which should be as hot as the child can bear without inconvenience. The skin of an infant is much more sensitive to heat and cold than a grown person's hand; so it is well not to forget that what may appear quite warm to you, will prove too hot to the child. As in the "Ordinary Bath," just described, see that every door and window has been closed, and let no one

come into the room until the child has been bathed and dressed. The clothing should be carefully removed, and, while doing this, do not let the child become frightened, as it often will at your preparations. Then stand it in the tub, and, with a towel which has been dipped into the water of the tub, wash its limbs and the lower part of the body. The child should now be made to sit down in the water; then with the towel, wash the other parts of the body, neck, and face which are not under the water. Do it quickly, but never forget to be gentle. A little Castile soap may be also used.

The length of time which the child should remain in the bath, must, as in other cases, be left a great deal to the intelligence of the mother; but usually it should not exceed two minutes. A good general rule, in the absence of a better one, is to take it out as soon as the perspiration breaks out on the skin. Where the skin is wet this is hard to tell; but if you will look at the forehead, close to the hair little beads of moisture can be seen coming out on the reddened skin.

The child has now had the bath; but the more important things are yet to be done. The first of these is to have an old soft towel, which has been made quite warm at the fire; then begin to dry the face, neck, shoulders and downwards as far as you can. After this, lift the child from the tub and finish the gentle but rapid use of the towel. The clothing, which is to be next put on, should have been all arranged for use before the child's garments were taken off for the bath; and the linen, flannel, and whatever else is to be put on, all nicely warmed before the fire. Lastly, have a small blanket (the one used for the cradle will do), and after it has been warmed, wrap it around the child, secure it at the

neck with a pin and the little one is ready for the bed. If all of these things have been done, and in this way the child feels quite comfortable, it would be a pity to put it into a cold bed; so while you are dressing it, let some one take a hot iron, and with it go over the place in the bed where the child is to lie.

A physician, in a very sensible article upon bathing, says: "For the 'wind in the stomach' children are thought to have, for their tiresome crying, and for the restlessness and worrying at night with which they are afflicted, if the warm bath were resorted to oftener, instead of using soothing syrups and worse nostrums, it would be far better for the children."

IMPORTANCE OF SLEEP.

Some of the sweetest joys of life are these which cost nothing, and which no money or price can purchase. Wealth has many comforts that are denied to those who have not wealth; but it does not enjoy a monopoly of all pleasures, nor even of the best of them. What sweeter enjoyment does life possess than the habit of undisturbed sleep? And yet, when it is wanting, all the wealth of diamond mines can not purchase it. There are eyes in stately mansions that woo slumber through half the night, and open in the morning unrested, and unrefreshed, from their unwilling vigils; and there are eyes in humble abodes that close gently in the inexpressible peace of profound slumber, without an effort. Sleep is one of the blessings that belong to childhood and youth, but are frequently denied to manhood and old age. Old people, generally, do not sleep long and well,

their repose is short and broken. They may go to sleep easily in their chairs, or they may nod in a railroad car; but this is not the sweet, forgetful sleep of their youth. They are addicted to the habit of early rising; they wake with the dawn, and rise from their uneasy couch because they can sleep no longer. Why old people should be able to sleep so little, it is hard for any but themselves to tell. It may be because their failing bodies are the abodes of aches, and pains, and infirmities that dispel the drowsy semi-death; or it may be that their memories are so active with the past that they can not sleep; it is hard to get at the thoughts of old people; they keep them to themselves; and we shall not fully know what those thoughts are till we ourselves shall have become old. But manhood has its habits of sleeplessness, also, and generally without a good cause for them. Persons in feeble health have a reason for their wakefulness; bodily ills, which the best of us can not always guard against, may keep the eyelids open when they wish to be sealed in peaceful slumbers. But sleeplessness with persons in tolerable health is too frequently traceable to dissipation, irregularities, and excesses in eating, drinking and other indulgences; or it may be the result of immoderate anxieties connected with business or responsibilities. We have heard men say that they have lain awake all night thinking of schemes to make money. The habit is a wretched one. These men were generally successful in business; but it was at the cost of a habit of mental anxiety that adhered to them through life. Wakefulness may become a habit, in itself, and so comfortless a one, that no one need be desirous to contract it. It may be that remorse and self-accusations for wrongs done and unrepaid, have a good deal

more to do with want of sleep in some persons than they are willing to admit. A secret wrong is like an evil spirit in the breast; it prays on the bosom in which it is concealed, and dispels sleep by haunting the night watches with its dismal accusations. Suspicious persons seldom sleep well. They torment themselves by thinking evil of others, and by construing every night sound to be the tread of a thief or robber. Innocence and faith are the secrets of the sweet slumber of childhood, and something very much like them must be the accompaniments of coveted sleep in maturer years. An unburdened conscience, and a serene trust in him to whom "light and darkness are both alike," may be set down as the first precedent conditions of healthful repose; and if there be one thing yet wanting to complete the case, it is to be found in a single word—moderation. Armed with these three weapons, one may put to flight all the demons of darkness that haunt the bedside of the weary, and invite troops of silver-footed fairies to drive their airy chariots over his closed eyelids to seal them in delicious sleep. As between a man whose red eyes and languid step denote want of sleep, and another who drops off to sleep as soon as his head touches the pillow, there is a difference which no amount of riches can atone for. Sleep is a blessing, a luxury, a comfort, a necessity, a delicious death that renews us, with a resurrection every twenty-four hours. It heals the ills of the body, it refreshes the spirit, it brightens the intellect, and soothes the temper; and when it comes naturally to the tired power, it may be indulged till of its own accord, it departs.

Sir Philip Sidney calls sleep, "the poor man's wealth," and, he might have added, it is every man's health. Men

have often, according to their notions, attempted to limit or extend the hours of sleep. Thus the "immortal Alfred" of England divided the day into three portions of eight hours each, assigning one for refreshment and the health of the body by sleep, diet, and exercise, another for business, and the third for study and devotion. Bishop Taylor considered three hours', and Richard Baxter four hours', sleep sufficient for any man.

"Nature requires five,
Custom gives seven,
Laziness takes nine,
And wickedness eleven."

The error into which these and others have fallen arises not only from the fact that in this, as well as in other things, every man is a law to himself, but from the varying amount required in each individual case at different times, depending upon the amount of renovation required by the nervous and muscular systems. John Wesley, the distinguished founder of Methodism, who attained the age of eighty-eight, and who could command sleep on horseback, says very properly, in some curious remarks which he has left upon sleep, that no measure will do for all, nor will the same amount of sleep suffice even the same person at all times. A person debilitated by sickness requires more of "tired nature's sweet restorer" than one in vigorous health. More sleep is also necessary when the strength and spirits are exhausted by hard labor or severe mental efforts.

We cannot have health without having a plenty of good, refreshing sleep. It is something which must be secured, and which cannot be dispensed with except at great loss to ourselves. When persons cannot sleep, it is certain that they must rapidly use up their vital forces.

The Scriptures inform us that God "giveth his beloved sleep." And this God-given blessing is not to be despised. As long as we can sleep well, we have evidence that in some important particulars, at least, the machinery of life is still in comparative good order. We must not count that time lost that is spent in refreshing sleep. It is thus alone that we can renew and preserve our energies for the work which we have to do.

Some persons are natural sluggards, as others are natural gluttons. The sluggard knows nothing of good sleep. He is to be pitied for his evil habits which lead him to waste his time in bed which he ought to spend in industrious labor. Laziness is sometimes to be shunned as we would shun vice. But the disease is so nearly incurable that it will not be at this time taken in hand.

But we have a few words of counsel to those who are in danger from overwork. If you would avoid breaking down, be sure to get plenty of sleep. We do not advise you to lie in bed in the morning. But we urge that whenever it is reasonable you retire early and compose your mind to quiet rest. If it be difficult to sleep, it is a proof that you have already begun to exhaust your nervous system, and should cause you to feel determined that this state of things shall be changed. Some things will help you to sleep. Of these we name, 1. A good conscience. 2. The spending of the day in something useful. 3. Keeping the soul from fretting and murmuring. 4. The habit of early rising. 5. The use of food that is hygienic, and abstinence from all other. 6. Never to eat supper. 7. To have your beds composed of that only which should be their proper materials. 8. To have plenty of sunlight in your sleeping room by day, and to have sufficient ventilation while it is occupied.

. If you are still troubled with inability to sleep, you will find a sponge bath before retiring an excellent preparation for quiet and refreshing sleep. It is not the business of life to sleep. No, by no means. Life is full of responsible duties that call for active, painful labor. But to perform these we must have a sufficient amount of good sleep. See to it that this is secured every night, if possible; and when you fail to get it because of duties that cannot be put off, take your earliest opportunity to make up the lack. You need not be afraid to work with zealous energy so long as you are able to secure a plenty of refreshing sleep.

A young man in business must acknowledge one mathematical fact. He knows by experience about how many hours of sleep he needs to be as fresh one day as on the previous. He must acknowledge the fact that he cannot sit up late and rise early, and get this amount of sleep. There is a right mathematical obstacle to the accomplishment of such a feat. If he needs seven hours sleep—as many young men do—or eight hours, as more young men do—he cannot get them between one o'clock A. M. and seven o'clock A. M. If he insists on late hours, he must neglect either his sleep at night or his business in the morning. Nearly every young man has sufficient mathematical acuteness at seven o'clock, A. M., to appreciate the impossibility of taking one from seven and leaving eight. The question is, whether or not he appreciates this impossibility in the evening when he is called upon to decide between a jolly good time and his bed. One very frequent mistake is that loss of sleep can be "made up." In the first place whatever a young man may intend to do, he very seldom actually tries to make up for lost sleep. If he needs eight hours sleep, and

gets but five, he usually makes up the lost three by sleeping about one hour longer than usual the next night. Or, perhaps, he depends on Sunday on balancing the whole week, and by three hours extra sleep make up for ten hours lost. In the second place, one hour of regular sleep is worth, for purposes of recuperation, at least two hours of make-up slumber. There is practically no such thing as making up for lost sleep.

Those who think most, who do most brain work, require most sleep. Time "saved" from necessary sleep is infallibly destructive to mind, body, and estate. Give yourself, your children, your servants—give all that are under you, the fullest amount of sleep they will take, by compelling them to go to bed at some regular hour, and to rise in the morning the moment they awake; and within a fortnight, Nature, with almost the regularity of the rising sun, will unloose the bonds of sleep the moment enough repose has been secured for the wants of the system. This is the only safe and sufficient rule; and as to the question how much sleep any one requires, each must be a rule for himself—great Nature will never fail to write it out to the observer under the regulations just given.

AMOUNT OF SLEEP REQUIRED.

Habit, climate, constitution, calling and age, all regulate the duration of the period of sleep necessary for different persons. People of phlegmatic temperaments, invalids, and young children, require more sleep than they who are active, who think quickly, more rapidly, and are of a nervous cast of mind. It is estimated that

eight or nine hours' sleep is about the fair proportion which every person should have who values his health or expects his intellect to be in good condition. A person can easily accustom himself to five or six hours of repose, but the operations of the system will languish in a degree proportionate as they are deprived of their natural rest.

The necessity of sound and refreshing sleep to all is greater than the need of food, drink, warmth, or anything else that nourishes and preserves the body. Repose taken at the right time affects the system very differently from that obtained later in the night. Sound sleep from ten to six will keep the body and mind in a very different state from that where rest is only taken from one until eight in the morning.

Every man must sleep according to his temperament; but eight hours is the average. If one requires a little more or a little less, he will find it out for himself. Whoever by work, pleasure, sorrow, or any other cause, is regularly diminishing his sleep, is destroying his life. A man may hold out for a long time, but nature keeps close accounts, and no man can dodge her settlements. We have seen impoverished railroads that could not keep the track in order, nor spare the engine to be thoroughly repaired. Every year track and equipments deteriorated. By and by comes the crash, and the road is a heap of confusion and destruction. So it is with men. They cannot spare time to sleep enough. They slowly run behind. Symptoms of general waste appear. Premature wrinkles, weak eyes, depression of spirits, failure of digestion, feebleness in the morning, and overwhelming melancholy; these and many other signs, show a general dilapidation. If now sudden calamity causes an extraor-

dinary pressure, they go down under it. They have no resources to draw upon. They have been living up to the verge of their whole vitality every year.

Dr. Cornell, of Philadelphia, contributes to the Educator an article on sleep, from which we make the following brief extract: No one who wishes to accomplish great things should deny himself the advantages of sleep or exercise. Any student will accomplish more, year by year, if he allows himself seven or eight hours to sleep, and three or four for meals and amusements, than if he labors at his books or with his pen ten or twelve hours a day. It is true that some few persons are able to perform much mental labor, and to study late at night and yet sleep well. Some require but little sleep.

No person who passes only eight hours in bed can be said to "waste time in sleep." According to Gorget, a woman should sleep a couple of hours longer than a man. For the latter he allows six or seven hours, for the former eight or nine. It is certain that strength or energy of brain will, when aided by custom, modify the faculty of controlling the disposition to slumber. Frederick the Great, and Hunter the great surgeon, slept only five hours in the twenty-four, while Prof. Dickson, in his Essay on Sleep, says the necessary amount of sleep must differ in the various tribes, as well as in different individuals, according to numerous and varied contingencies. The average proportion of time thus employed by our race may be stated pretty fairly at one-third. The allotment of Sir William Jones, slightly altered from an old English poet, does not depart much from this standard:

"Seven hours to books, to soothing slumbers seven,
Ten to the world allot, and all to Heaven."

The busy engagement of ambition and avarice may induce men to subtract more or less from their due repose, but any considerable deduction must be made at a great risk to both mind and body. Sir John Sinclair, who slept eight hours himself, says that in his researches into the subject of longevity, he found long life under all circumstances and every course of habit; some old men being abstinent, some intemperate; some active, and some indolent; but all slept well and long. Yet he gives a letter from a correspondent, recording the case of an old man of ninety-one years of age who had slept through life but four hours a day. Alfred the Great slept eight hours a day; Jeremy Taylor but three. Dr. Gooch tells us of an individual who slept only fifteen minutes in the day; but it is scarcely credible. Bonaparte, during the greater part of his active life, was content with four or five hours sleep: the same is said of Frederick the Great and of John Hunter. Professor Dickson says, "I know familiarly a person whose average has been even lower than this; I have heard his wife say that they were married four years before she had even seen him in sleep." Seneca is quoted as telling the incredible story of Macænas, that he had passed three years without sleeping a single hour. Boerhave says of himself that he was six weeks without sleep, from intense and continued study. Statements like these demand close examination and clear proof.

Henry Kirke White was a model of industry in his boyhood and early youth. Though obliged to toil for his daily bread, he rose at a very early hour, and devoted himself to study with the greatest ardor. When working hours were over, he returned to his books with enthusiasm, and prolonged his studies far into the night.

He allowed himself but a few hours sleep, but his indomitable spirit seemed equal to the strain. He became an accomplished scholar and poet, and died at twenty-one. Who could afford to become learned at such a cost? The "midnight oil" that people think so very poetical, is fed from the brain of the worker. So many quote Dr. Franklin as authority on early rising, who quite forget that he speaks quite as pointedly about early retiring. If the two go together, very well, but don't disconnect them, or you may pay a heavy penalty. It is only once in a century that such men as Wesley and Napoleon I. appear on the stage; common clay is made up very differently, and would crumble to dust at a tithe of what these iron men endured.

Mothers, don't let any one persuade you to take less sleep. Take all you can get, let that be your measure; with that appalling fact always before you, that the Western insane asylums are recruited largely from the class of farmers' wives, learn to hug sleep as your preserver; when that forsakes your pillow, beware, for "that way madness lies," or years of helpless, excruciating nervous torture. "Sixteen years upon the rack," writes a friend to me, not old either, with perhaps years yet before her—with no hope of help. A lady of high culture resolved, in her zeal to do good in life, to take this motto, "Not one idle moment." She persevered bravely, robbing her pillow and putting her hand to every good work in her way. The result was years of nervous suffering which no tongue can portray, "unutterable anguish" to use her own expression. With wealth and every attendance that loving hearts can give, she still hovers on the verge of life, living yet always dying.

The cry for rest has always been louder than the cry

for food, not that it is more important, but because it is often harder to get. The best rest comes from sound sleep. Of two men or women, otherwise equal, the one who sleeps the best will be the most moral, healthy and efficient. Sleep will do much to cure irritability of temper, peevishness, uneasiness. It will cure insanity. It will restore to vigor an over-worked brain. It will build up and make strong a weary body. It will do much to cure dyspepsia. It will cure the headache. It will cure a broken spirit. It will cure sorrow. Indeed, we might make a long list of nervous maladies that sleep will cure.

If girls would have roses for their cheeks, they must do as the roses do—go to sleep with the lillies, and get up with the morning-glories.

SLEEPLESSNESS.

It is the result of over bodily or mental effort. When a man works beyond his strength, or thinks or studies more than rest can restore, then, sooner or later, comes that inability to sleep soundly, that wakefulness, which is more wearing even than bodily labor, and which feeds the debility which first gave rise to it. The result is, a man is always tired, never feels rested, even when he leaves his bed in the morning; hence he wastes away, and finds repose only in the grave, if, indeed, insanity does not supervene. It is too often a malady, remediless by medical means. Avoid then, as you would a viper or a murderer, all over effort of mind and body; it is suicidal. Whatever you do, get enough sleep; whatever you do, take enough rest to restore the used energies of each

preceding twenty-four hours; if you do not, you may escape for a few months, and if possessing a good constitution, years may pass away before any decided ill result forces itself on your attention; but rest assured the time will come, when the too often baffled system, like a baffled horse, will refuse to work; it will not take prompt and sound sleep; it will not be rested by repose, and that irritating wakefulness will come upon you, which philosophy cannot conquer, which medicine cannot cure, and wasting by slow degrees to skin and bone, rest is found only in the grave.

There are thousands of busy people who die every year for want of sleep. Sleeplessness becomes a disease, and is the precursor of insanity. We speak of sleep as the image of death, and our waking hours as the image of life. Sleep is not like death; for it is the period in which the waste of the system ceases, or is reduced to its minimum. Sleep repairs the waste which waking hours have made. It rebuilds the system. The night is the repair shop of the body. Every part of the system is silently overhauled, and all the organs, tissues, and substances are replenished. Waking consumes and exhausts; sleep replaces and repairs. A man who would be a good worker must be a good sleeper. A man has as much force in him as he has provided for in sleep. The quality of mental activity depends upon the quality of sleep.

There is a great deal of intemperance besides that of tobacco, opium or brandy. Men are dissipated who overtax their systems all day, and undersleep every night. A man who dies of delirium tremens is no more a drunkard and suicide, than the minister, the lawyer, the merchant, the editor, or the printer, that works excessively all day and sleeps but little all night.

Dr. Cornell gives the following opinion corroborative of the above as an explanation of the frequency of insanity. He says: "The most frequent and immediate cause of insanity, and one of the most important to guard against, is the want of sleep. Indeed, so rarely do we see a recent case of insanity that is not preceded by want of sleep, that it is regarded as almost a precursor of mental derangement. Notwithstanding strong hereditary predisposition, ill health, loss of kindred or property, insanity rarely results unless the exciting causes are such as to produce a loss of sleep. A mother loses her only child; a merchant his fortune; the politician, the scholar, the enthusiast may have their minds powerfully excited and disturbed; yet, if they sleep well, they will not become insane. No advice is so good, therefore, to those who have recovered from an attack, or to those who are in delicate health, as that of securing, by all means, sound, regular and refreshing sleep." "And," says Dr. Spicer, "there is no fact more clearly established in the physiology of man than this, that the brain expands its energies and itself during the hours of wakefulness, and that these are recuperated during sleep; if the recuperation does not equal the expenditure, the brain withers—this is insanity. Thus it is that, in early English history, persons who were condemned to death by being prevented from sleeping, always died raving maniacs; thus it is also, that those who starve to death become insane; the brain is not nourished, and they cannot sleep."

"It is late hours," says Dr. Lewis, "and exposure to night airs, hot atmospheres and fatigues, which dries up the juices of youth and saps the ramparts of beauty—which shrivels the skin into discolored parchment, pinches the nose with icy fingers, and strips the bones until they

start like barrel hoops in sickly meagreness. To correct this, go to bed at eight o'clock, and sleep until six in the morning. Nature requires ten hours healthful sleep for all growing persons. Violate this rule and it may not show at first, but the budding beauty of sixteen will inevitably wither into a fading stem at twenty-two." It is in the vitiated airs of theatres, parties, clubs and balls that we manufacture our skeletons, thinks our worthy doctor, and forsooth he is not far from wrong. For day observance he prescribes plenty of healthy exercise and plain diet. Eat, says he, oat meal porridge, cracked wheat, Graham mush, sweet apples baked, and have no scruple about sugar and cream. Take a nap in the day time when you can get it. In addition to this drink plenty of water—drink it whenever you can, and as much as you can, when you first get up; and when you go to bed, one or two or three tumblers full. Water, in fact, is the basis of flesh, and consequently its creator. Finally the doctor, after prescribing sleep, exercise, temperance and cleanliness, ends his directions with sunshine. Could anything be fitter? He says, associate only with the jolliest persons you know. Avoid the solemn visages. Shun the lugubrious. Cultivate the cheerful—the men and women who laugh. Laugh yourself. Laugh and grow fat. Laugh at everything, yourself included; and if you even do not succeed in kicking the beam at a heavy avoirdupois, you will at least be happy in the experiment. To all human skeletons and ghastly anatomies who envy the curved lines of beauty, and wish to become ornaments in place of social scarecrows, we earnestly recommend this healthful advice, which costs little to follow, and may prove prolific of unnumbered blessings.

HOW TO SECURE SLEEP.

Sleep is the natural restorative of the wasted energies of the human system. It is during sleep that the processes of assimilating the food and nutrifying the tissues are thoroughly carried on and perfected, and that the nervous system is built up and invigorated. He who is a good sleeper, habitually enjoying quiet, refreshing and unbroken sleep of seven or eight hours every night, can scarcely fail to have good health; while he whose sleep is disturbed and broken from any cause, who is restless and unquiet, and who fails to find himself in the morning refreshed and reinstated in tone and energy,—however favorable his other conditions may be,—cannot be a well person; or if he has health he is in a sure state to lose it. So potent is sleep as a means of restoring strength to the nervous and muscular systems, that the judicious physician—of whatever school—values it above all other physical agencies as a curative in disease. However much the doctor may think of the virtues of his medicines, he will suffer his patient to pass them all by so long as he can sleep! Healthful, refreshing sleep, therefore, should be duly valued by all who wish to have sound health. We cannot afford to be indifferent whether “tired nature’s sweet restorer” visits our pillows favorably or not. We must be very hospitable to her; we should be at great pains to entertain her; we should woo her favors; we should be careful to make all the circumstances and surroundings agreeable to her requirements; then she will not show herself a moody, fickle or unreliable guest, but will make herself at home with us, and wrap us nightly in her soft embrace, till fresh life and vigor are infused into us.

There are other ways of "murdering sleep" than by guilty conscience, like Macbeth. One of the most effectual is practised alike by men and women—which is the habit of carrying their business, whatever it may be, to bed with them. The merchant is absorbed in his mercantile affairs from morning till evening, and, when he closes his store at night, he does not close his business, shutting the affairs of the day out of his mind and occupying it with other thoughts which shall prove a diversion and relief; but he allows himself to study, and plan, and calculate about the special matters which have occupied him during the day. He goes to bed with his head full of business; when he sleeps his brain is burdened with it; he wakes, and turns, and dozes, and turns again. Business haunts him like a night-mare. He awakes in the morning unrefreshed and enervated, having performed as much business by night as by day. The lawyer suffers his business to occupy his mind clear up to the time of retiring; and then when he would put it away he cannot, but it flits about his bed-head, whispering first in this ear, then in that; startling sleep from him whenever she would settle upon him with her downy pinions. The minister studies his sermon far into the night, and then goes to bed and sermonizes during the remainder of the night, and rises in the morning weary and worn. The student pores over his lessons till midnight, then goes to his couch with a brain excited and active; and so can get no continuous undisturbed repose. Women who have husbands and children and houses to care for, work and calculate, and plan, till the management of their households and servants comes to absorb all their thoughts and life, till they keep house at night between the intervals of fitful sleep, as well as during the day. Teachers

carry their schools to bed with them, and expend their sleeping as well as their waking energies upon them. In order to secure such repose of the mind and body as shall reinvigorate them, it is essential that the thoughts be turned out of the channel in which they have run during the day. They must be effectually diverted from their course. Thus the action of the nervous system is modified, the circulation of the blood is changed, and a sedative condition is secured.

There is real philosophy in the practice of devoting the evening to amusements. Legitimately regulated and intelligently appropriated, they would for the time absorb the attention, thoroughly breaking up the action of the mental faculties, and so be the most fitting preparation for healthful sleep. By amusements and recreations, by social intercourse, or by conversation, pleasant or gay; by reading something which shall not task the mind, while at the same time it diverts it with new thought; by light and pleasant physical exercise in the open air—not in gymnasiums—or by some other means, should all persons, whose minds are burdened with cares or study, relieve the pressure before retiring at night. The housekeeper may walk in the fields, and listen to the birds and pluck flowers, or cultivate and train flowers in her garden, or have a romp with her children; being sure for the time to become herself a child, and forget the duties of the day. She may seek to divert her thought by chatting with her neighbor; only let her be sure not to chat upon household affairs, and not to allude to her trials in the management of her children, nor to her hardships in her labor.

One of the greatest mistakes which people make, so far as cultivation and expansion of the mind are con-

cerned, not mentioning sleep, is always to make their conversation relate to their particular work or profession. Mothers are prone to be continually talking about their children, or domestic affairs; teachers about teaching; farmers about their farming business; lawyers about the law, &c. Every person, however much necessity may cause him to be devoted to business during the day, should so command his resources and surroundings, that before going to his couch at night, he shall be emptied of his farm, store, office, study, household work, teaching, and be simply a human being, lovingly related to God and to all men. Then, if his stomach has not work on hand, his sleep will be sweet and refreshing, and one of the surest preventives of sickness he can possibly have.

The effects of protracted wakefulness sooner or later show themselves in the strongest constitution. The person becomes gloomy, irritable, and peevish. The memory is defective, and the thoughts confused. Perhaps the most terrible punishment which Chinese ingenuity has devised, is prolonged loss of rest. It leads the way to and even seems to be the cause of insanity. Some of the greatest intellects have suffered from privation of sleep. Newton's mind was impaired by it in his later years; Southey's insanity was preceded by it. The more gifted and cultivated the mind of an individual is, the more liable he will be to wakefulness. The untutored sons of bodily toil have but few vigils, and among all the animals, sleeplessness without external cause probably belongs to man alone. The lower animals are soon affected by loss of sleep. In Ceylon, wild elephants are kept constantly awake until they become tame; by this means the spirit of the most refractory is soon subdued.

In order to promote sleep in cases where it is wanting, it is of course, in the first place, necessary to remove every exciting cause of wakefulness. It is generally essential to give up the use of tea and coffee, and, as has been said, it is necessary to leave off stimulants. The person should take care that he does not go to bed either with cold feet or with a stomach that has been long empty.

Many devices for inducing somnolence have been practised with more or less success; one of these is combing the hair, which has a very soothing effect on some persons. Another is to have the feet gently shampooed. Walking about the bedroom in one's night-dress, so as to get what Dr. Franklin called an air-bath, is a good plan, and the cold-water bath just before retiring to rest, by virtue of its stimulating action, is often successful. In more refractory cases, the warm bath may be tried—it acts by withdrawing the blood from the brain. On the same principle, the upright position, by favoring the return of blood from the head, is sometimes useful. It is, indeed, no uncommon thing to meet people who sleep with great facility when sitting in a chair, or in a carriage, but who sleep with difficulty when lying down in bed.

The best bed to sleep upon is a hair-mattress, and the worst of all is that made of feathers. Many people are so susceptible that they are unable to sleep in a strange bed. A pillow filled with hops, the emanations from which are narcotic, has been sometimes used with success to induce sleep.

People, as a rule, go to sleep most easily when lying on the right side. Proper ventilation of the bedroom is indispensable for sound sleep and for health.

In a state of health, when the balance between mind and body is properly maintained, sleep will naturally follow either mental or bodily fatigue. This balance is often sadly disturbed, because an over-stimulation of all our powers is the besetting evil of our generation. Nothing is more important in order to secure sleep than to diminish the intensity of thought. Under favorable circumstances, this can generally be effected by the will. In other instances however, the more the will is exercised against them, the more attention is given to the truant thoughts. At length the will, borne down by the torrent of ideas, gives way altogether, and protracted sleeplessness results. It is hardly necessary to repeat here that such an active state of brain implies that the circulation through it is active, and that it is the opposite of this condition which prevails in sleep.

Sleep is a powerful antidote to a long list of nervous ailments. The following are among the good rules which if observed will usually bring relief to those afflicted with chronic sleeplessness: A good clean bed. Sufficient exercise to produce weariness, and pleasant occupation. Good air and not too warm a room. Freedom from too much care. A clear stomach. A clear conscience. Avoidance of stimulants and narcotics.

Persons who usually sleep well are sometimes troubled for a night. A warm bath, or a thorough rubbing with a coarse towel or a flesh brush, often give relief. Sometimes any mental exercise which concentrates the mind on one subject will bring relief. Playing a game of skill, such as checkers or chess, demonstrating a difficult proposition in geometry, or solving an arithmetical or algebraical problem, has often led to this mental condition, and been followed by a good sleep, which otherwise

seemed impossible. A lady friend of ours says she frequently "wins sleep" by *counting*—generally getting asleep before reaching one hundred. Another friend counts in some other language, as German or Latin, and thus gets asleep. In each case the "sweet restorer" comes as soon as the mind concentrates its "wandering forces."

Bacon, before retiring at night, used to indulge himself with a posset of strong ale, which helped to subdue the sprightly activity of his fancy. Harvey, who taught the circulation of the blood, used, like Franklin, to induce somnolence by getting out of bed and walking about until half congealed, after which the warmth of the blankets was welcome and soon induced slumber. Other persons call the bards to their aid, and compel the presence of death's half brother by the magic of potent verse. Another plan is, when health and the supply of animal spirits will allow, to determine not to go to sleep at all, but to draw up the blinds, and look out, if it be a clear night, at the stars, endeavoring to divine whether they and we are travelling through the infinite gulf of space.

Sleepless persons should court the sun. The very worst soporific is laudanum, and the very best, sunshine. Therefore poor sleepers should pass as many hours as possible in the sunshine, and as few as possible in the shade. Many women are martyrs, and yet they do not know it. They shut the sunshine out of their houses and their hearts, they wear veils, they carry parasols, they do all possible to keep off the most potent influence which is intended to give them strength, and beauty, and cheerfulness.

The best anodyne, says Hall, is a liberal amount of

muscular activity out of doors every day. Persons who sit around the fire and lounge on the sofa, or read or sew a great part of the day, need not expect sound sleep; only the laboring man can taste it in all its sweetness. Many fail to sleep at night because they will persist in sleeping in the day time. It is just as impossible to healthfully force more sleep on the system than the proportion of exercise requires, as to force the stomach to digest more food than the body requires. Rather than court sleep by industrious activities, many persons resort to medicine, and every new drug which is heralded as a promoter of sleep becomes at once immensely popular, even though it is known to possess dangerous qualities. Chloral hydrate has had a great run, and even young men are known to be purchasing it at the drug stores, to be used in promoting sleep; it should never be taken unless advised by the family physician, for the medical journals are constantly publishing cases where serious harm and even fatal results attend its habitual use.

Nervous people who are troubled with wakefulness and excitability usually have a strong tendency of blood to the brain, with cold extremities. The pressure of blood on the brain keeps it in a stimulated or wakeful state, and the pulsations in the head are often painful. Let them rise and chafe the body and extremities with a towel and brush, or rub smartly with the hand to promote circulation and withdraw the excessive amount of blood from the brain, and they will fall asleep in a few moments. A sponge bath and rubbing, or a good run, or a rapid walk in the open air, or going up and down stairs a few times just before retiring, will aid in equalizing circulation and promoting sleep. These rules are simple and easy of application in the castle or cabin, and

may minister to the comfort of thousands who would freely spend money for an anodyne.

Dr. Hammond says that the important thing in securing restful sleep is to divert the blood from the brain, because in nature sleep is caused by a less circulation of blood through the head. All who wish to rest well should not only avoid hearty eating in the evening, but also all exciting reading or games, and everything calculated to disturb the mind or start a busy train of thought. The best night-cap of all is a fresh walk, of a mile or two, with a lively companion, in the open air. Come home from it in a glow, with the feet and legs warm with exercise, take your candle and your cracker, bid the rest good night, and your chances are good, if you have not worked the brain since five o'clock, of knowing nothing and regretting nothing till morning. This is on the supposition that you have a window open in your bedroom, or some equally efficient ventilation. Perhaps it is well to add to the advice about bodily exercise in the evening for a "night-cap" the exceptional caution, unless you are already sleepy, in which case a walk would wake you and postpone your slumbers so much longer.

The want of ability to sleep well is an indication of impaired health which demands prompt attention. As a remedy for this, Dr. Hall recommends that present associations be broken up, whatever may be the sacrifice; that some more active employment be undertaken; or a long journey be taken, on horseback, if possible, and with a good companion. A great specific is to be vigorously employed in the open air a large portion of the time. If you find yourself inclined to wake up at a regular hour in the night and remain awake, you can break up the habit in three days, by getting up as soon as you

wake, and not going to sleep again until your usual hour for retirement; or retire two hours later and rise two hours earlier for three days in succession. All the cares of the day ought to be laid aside with our clothes. None of them must be carried to bed with us; and, in this respect, custom may obtain very great power over the thoughts. It is a destructive practice to study in bed, and read till one falls asleep. Let the full meal come in the middle of the day. Two hours after it has been taken, walk three or four miles or ride twice that number. Eat a light, easily digested supper, and pass the succeeding hours till bedtime in an agreeable but not exciting manner. Avoid causes of worry.

A correspondent writes us his method of inducing sleep as follows: "When you lie down at night close your lips and draw the breath through the nostrils hard enough to make an audible sound, then listen closely, and if the mind is in a strain upon any subject, this will serve to draw it off. Almost any one will go to sleep in a few moments by following this method, and in the morning will rise feeling a great deal more refreshed than if they had gone to sleep with the mind in a strained condition."

When persons are prevented from sleeping by a slight hacking cough, sleep is sometimes induced by having two pieces of muslin, say six inches by four, and three or four folds thick, to be used alternately thus: Have a saucer at hand, half filled with alcohol, dip one of the cloths into it, then press it out, so as not to drip, and lay it across the chest, the upper edge of the cloth ranging with the collar-bones; let it remain five minutes, then put on the other, alternating thus (by the nurse) with as little motion or noise as possible, the patient being on his back in bed composed for sleep.

A French medical journal advises, on retiring, to put five or six bits of sugar candy, as large as a hazlenut, in the mouth, averring that before they are melted, the desired effect will have been produced.

An English writer says: "The great point to be gained in order to secure sleep, is escape from thought, especially from that clinging, tenacious, imperious thought which in most cases of wakefulness has possession of the mind. I always effect this by the following simple process: I turn my eyeballs as far to the right or left, or upward, or downward, as I can without pain, and then commence rolling them slowly, with that divergence from a direct line of vision around in their sockets, and continue doing thus until I fall asleep, which occurs generally within three minutes—always within five at the most. The immediate effect of this procedure differs from that of any other I have ever known, to procure sleep. It not merely diverts thought into a new channel, but actually suspends it. Since I became aware of this I have endeavored, innumerable times, while thus rolling my eyes, to think upon a particular subject, and even upon that which before kept me awake, but I could not. As long as they were moving around, my mind was blank. If any one doubts this, let him try the experiment for himself. I wish he would: let him pause just here and make it. I venture to assure him that, if he makes it in good faith in the manner described, the promise of "a penny for his thoughts," or for each of them, while the operation is in progress, will add very little to his wealth. Such being its effects, we cannot wonder that it should bring sleep to a nervous and wakeful man of a night. The philosophy of the matter is very simple. A suspension of thought is to the mind what a suspension of travel or

labor is to a weary body. It enjoys the luxury of rest; the strain upon its faculties is removed; it falls asleep as naturally as the farmer in his chair after toiling all day in his fields."

All methods are founded on the principle that the mind must not be interested; and yet some occupation of a monotonous and almost mechanical character be given to it. Some try to say the multiplication table as far as they can go—far beyond "twelve ones are twelve." Others decline a Latin, Greek, or French or Hebrew verb. Some count as long as they can. Some count the tickings of a clock or the imaginary ticking of one—or the beats of the pulse. Some perform an algebraic problem mentally. Others try squaring numbers consisting of three or four or more digits. We have found some use in trying to say some well known piece of poetry backward. Let the reader try it—we think he'll go to sleep before he turns a four-line stanza in this way. In Binn's *Anatomy of Sleep* (published in London, in 1842), the following is given: "The patient is to fix his attention on his own breathing. He must depict to himself that he sees the breath passing from his own nostrils in a continuous stream, and the very instant that he brings his mind to conceive this, apart from all other ideas, consciousness and memory depart; imagination slumbers; fancy becomes dormant; thought subdued, the sentiment faculties lose their susceptibility; the vital or ganglionic system assumes the sovereignty, and he no longer wakes, but sleeps." Every one must, however, be his own doctor in this matter, as what will be monotony to one will grow into an interesting occupation to another—and the mind must cease to be engaged or the owner of it cannot go to sleep.

Mr. Frank Buckland, in a recent article on this subject, takes the ground that it is natural for man, like other animals, to sleep soon after eating. The following passage will be indorsed by all who are in the habit of after-dinner naps or late suppers: "The cause of not being able to sleep—I write now of people in good health, and hard workers with their brains—is that the brain cannot, so to speak, "go down," but it continues to act, more or less. My father, when writing the Bridgewater Treatise, had his own way of working. He was an excessively busy man during the day, and had only the night hours in which he could write. He generally dined at seven o'clock, and immediately after dinner went to sleep for two or three hours. He then got up, and worked on till two or three in the morning. Just before retiring to rest, he took some light pudding, or a sandwich, with cocoa or milk. Thus he always slept well, as the blood was diverted from the brain to the stomach.

"I have no hesitation in saying that the proper thing to do is to go to sleep immediately (or at least very soon) after the meal of the day. All animals always go to sleep, if they are not disturbed, after eating. This is especially noticeable in dogs; and the great John Hunter showed by an experiment that digestion went on during sleep more than when the animal was awake and going about. This is his experiment: He took two dogs and gave them both the same quantity of food. One of them was then allowed to go to sleep, the other was taken out hunting. At the end of three or four hours he killed both these dogs. The food in the stomach of the dog which had been asleep was quite digested; in that of the one which had been hunting, the food was not digested at all.

"I well recollect the late Dr. Wilberforce, then Bishop of Oxford, telling my father, then most actively engaged as Dean of Westminster, of his patent way of going to sleep. It is better than the old-fashioned prescription of watching sheep jumping through a hedge one after another, ships sailing out to sea, etc. The bishop's prescription was to repeat very slowly the vowels A E I O. In doing this they were to be faintly pronounced with each inspiration and expiration. It will be found easy to do this without moving the lips, but the vowel U must not be pronounced, for to do this the muscular action of the lips necessarily takes place, and sleep comes not. I advise my readers to try this plan."

Farther on the writer gives a prescription for want of sleep which he has himself tested: "I now venture to suggest a new but simple remedy for want of sleep. Opiates in any form, even the *Liquor opii sedat.* and chlorodyne, will leave traces of their influence next morning. I therefore prescribe for myself, and have frequently done so for others—onions; simply common onions raw, but Spanish onions stewed will do. Everybody knows the taste of onions; this is due to a peculiar essential oil contained in this most valuable and healthy root. This oil has, I am sure, highly soporific powers. In my own case they never fail. If I am much pressed with work, and feel I shall not sleep, I eat two or three small onions, and the effect is magical. Onions are also excellent things to eat when much exposed to intense cold. Mr. Parnaby, Troutdale Fishery, Keswick, informs me that when collecting salmon and trout eggs in the winter, he finds that common raw onions enables him and his men to bear the ice and cold of the semi-frozen water much better than spirits, beer, etc. The Arctic

Expedition, should, therefore, take a good stock of onions. Finally, if a person cannot sleep, it is because the blood is in his brain, not in his stomach; the remedy, therefore, is obvious; call the blood down from the brain to the stomach. This is to be done by eating a biscuit, a hard-boiled egg, a bit of bread and cheese, anything. Follow this up with a glass of milk or water, and you will fall asleep."

Sleep is sometimes interfered with by coldness of the extremities in old and young of a feeble circulation; such should wear at night good warm woollen drawers, until, by obtaining more vigorous health, the cause of coldness is removed; and such should not rest satisfied until the drawers can be dispensed with, because the more clothing worn at night, the more will be required in the day-time; the proper and only healthful source of comfortable animal heat is a vigorous digestion.

Several years ago it was related that a fine-looking old man, who had retired from business many years before with a large fortune, declared that he never slept more than two or three hours during the night, and often not that much, and that he offered to give half his fortune, or to begin the world anew, without a dollar, if he could only sleep as well as when he was a young man. Shortly after, he had stolen from him something over six hundred and fifty thousand dollars; the efforts made to obtain some clew of the robbers, extending over some months, requiring a great deal of personal exertion, mental and physical, so acted upon mind and body, that he began to sleep as well as anybody, especially when he had succeeded in getting back his money, with the exception of the fraction of the hundred thousand.

To be willing to give hundreds of thousands of dollars

to get some sleep, how miserable such must be; and yet the day-laborer envies the rich man his money and his leisure almost as much as the rich man envies their sleep and appetite. If men would only look at the compensations of life; see how evenly they were adjusted, much more evenly than the majority imagine, there would be more thankfulness than there is for what we enjoy, and greater contentment with our lot. The rich can't get to sleep; the poor can't wake up; that is, would oversleep themselves, if their necessities did not wake them.

POSITION IN SLEEPING.

The best position in which to go to sleep, says Dr. Hall, is on the right side; the heart being on the left, it has greater freedom of action than when the weight of that part of the body is on it; then the stomach is very much in the position of a bottle turned upside down, and the contents of it are aided in passing out by gravitation. If one goes to sleep on the left side, the operation of emptying the stomach of its contents is more like drawing from a well. After going to sleep, let the body take its own position. If you sleep on your back, especially soon after a hearty meal, the weight of the digestive organs, and that of the food, resting on the great vein of the body, near the backbone, compresses it and arrests the flow of the blood more or less. If the arrest is partial the sleep is disturbed, and there are unpleasant dreams. If a meal has been recent and hearty, the arrest is more decided; and the various sensations, such as falling over a precipice, or the pursuit of a wild beast, or other impending dangers, and the desperate

effort to get rid of it, arouses us and sends on the stagnating blood, and we awake in a fright of trembling, or in a perspiration, or feeling exhausted, according to the stagnation and the length and strength of the effort made to escape the danger. But when we are unable to escape the danger—when we do fall over the precipice, when the trembling building crushes us—what then?—That is death! That is the death of those of whom it is said, when found lifeless in the morning, “That they were as well as ever they were the day before,” and often it is added, “and ate heartier than common!” This last, as a frequent cause of death to others who have to go to bed and wake no more, we give merely as a private opinion. The possibility of its truth is enough to deter any rational man from a late and hearty meal. This we do know with certainty, that waking up with painful diarrhœa or cholera, or bilious colic ending in death in a very short time, is probably traceable to a late large meal. For persons to eat three times a day, it is amply sufficient to make the last meal of cold bread and butter and a cup of some warm drink. No one can starve on it, while perseverance in the habit soon begets a vigorous appetite for breakfast, so promising of a day of comfort. For people who limit themselves to light or easily digested suppers, or who go supperless to bed, the posture of rest may be a matter of indifference; but to individuals inclined to rotundity or to indulge in hot suppers and accompaniments, the best way to avoid or to facilitate escape from uneasy sensations is a question of interest.

It is often a question among people who are unacquainted with the anatomy and physiology of men, whether lying with head exalted or level with the body is the most wholesome. Most, consulting their own ease

on this point, argue in favor of that which they prefer. Now, although many delight in bolstering up their heads at night, and sleep soundly without injury, yet we declare it to be a dangerous habit. The vessels in which the blood passes from the heart to the head are always lessened in their cavities when the head is resting in bed higher than the body; therefore, in all diseases attended with fever, the head should be pretty nearly on a level with the body, and people ought to accustom themselves to sleep thus, and avoid danger. One who sleeps with several pillows under his head will complain of a weak back during the day. It is the same as sitting with the head bent forward. If one will lie with his head low, he will be cured of a weak back, and his general health will be improved. The mouth always should be closed. The breathing place is through the nostrils.

The head should be the same relative position with the body during sleep, as when the person is sitting or standing. Consequently, when lying upon the back, no pillow or bolster is needed. When lying upon the side, a pillow of sufficient size to keep the head on a line with the spine should be used. If the head is raised above the level of the body, both respiration and the circulation of the blood are interfered with in proportion to the degree of elevation. The air passes to and from the lungs, and the blood to and from the heart, in tubes contained in the neck. Now take a straight tube of any kind, and a certain quantity of air or liquid, at a certain pressure, will pass through it in a given time, but if you bend the tube as the tubes in the neck are bent by having the head elevated, the quantity of air or liquid which will pass through in the same time with the same pressure will be diminished; and the greater the bend the greater

the obstruction. Twisting of the neck also interferes with the respiration and circulation by diminishing the capacity of the trachea and blood-vessels.

The recumbent position has obviously very much to do with sleep. Undoubtedly, sleep may occur in the sitting posture, and even while standing ; but these cases are exceptional. It is certain, also, that sleep in bed, as a rule, is sounder with a low pillow than a high one. If, then, there be a state of wakefulness at night the head should be kept low ; if, on the contrary, there be undue sleepiness, the head should be kept high. The degree of sleep, and the amount of it, may be regulated by simply taking care that the head is in the right position. If prolonged recumbency is a necessary part of the treatment, the tendency to sleep too much during the day, and too little at night, may thus be corrected. By raising the head in the daytime, the patient remains awake sufficiently to be able to sleep at night ; by dressing the head at bedtime, the conditions are favorable to sleep during the night, and, as a rule, sleep is conciliated in this way, without the help of narcotics.

It is an old notion that it is healthier to sleep with the head pointing, like the needle, toward the North Pole. Even if it does no good it can hardly do harm, and a physician writes to the *Dublin Journal of Medicine* in support of the old theory as really substantial. He has tried the experiment in the case of sick persons, with marked effect, and insists that there are known to exist great electric currents, always crossing in one direction around the earth, and that our nervous systems are in some mysterious way connected with this electrical agent. Herr Dr. Julius von Fischweiler, an eccentric German physician, recently died, leaving in his will what he con-

sidered a secret for increasing the years of our life. His own age was 109, and he attributed it to the fact that he always slept with his head to the north, and the rest of his body as nearly as possible in a meridional position. By this means, he thought, the iron in his body became magnetized, and thus increased the energy of the vital principle.

AFTER-DINNER NAPS.

Many persons, particularly the middle-aged and elderly, allow themselves this real indulgence; and the custom, if not carried to excess is by many medical men considered beneficial rather than otherwise, as by keeping the body in a state of quietude digestion is promoted and assisted. In Southern countries the midday sleep, termed the *siesta*, is almost universally taken, and wonderfully refreshes the frame enervated and weakened by the intense heat. It is, however, recommended that such sleep be not indulged to too great a length, as persons invariably find such prolonged slumber in the day time causes them to awake dull, irritable, and unrefreshed; while most have experienced, on having been accidentally roused up a few minutes after absolute forgetfulness, a sensation of lightness and renewed vigor, unattended by peevishness or the least desire to sleep again. Medical men, in sanctioning the indulgence, particularly advise that it be taken in a reclining posture, but by no means lying horizontally, the stomach, in the latter position, pressing on the intestines and causing the blood to be impelled to the head. Corpulent persons, and those who have a tendency to apoplexy, should be particularly mindful of this point.

Dr. Combe, who is good authority, says that sleeping after dinner is a bad practice. On awakening from such indulgence, there is generally some degree of febrile excitement, in consequence of the latter stages of digestion being hurried on; it is only useful in old people, and in some cases of disease. Sleep becomes wholesome only to the healthy when at those hours pointed out by nature; an excess of it produces lassitude and corpulency, and utterly debases and stupifies the mind. Corpulent people should sleep little and upon hard beds, while they should take abundance of exercise and live abstemiously, that their unhealthy bulk may be reduced.

The Herald of Health tells us that sleeping after dinner is a bad practice, and that ten minutes before dinner is worth more than an hour after. It rests and refreshes and prepares the system for vigorous digestion. If sleep is taken after dinner it should be in a sitting posture, as the horizontal position is unfavorable to healthful digestion. Let those who need rest and sleep during the day take it before dinner instead of after, and they will soon find that they will feel better, and that their digestion will be improved thereby.

The torpidity which results from partaking of a hearty meal arises from overloading the stomach, and the rule which enjoins rising from the table before the appetite is entirely satisfied, will prevent any disagreeable consequences.

Another writer says: It is not a good practice to sleep after dinner. It is a dangerous one even, especially where there is a great inclination to it, as this indicates a tendency to fullness of the head, and its more or less remote consequences of apoplexy, etc., which are favored by the habit of taking a daily *siesta*.

SLEEPING TOGETHER.

The enormous beds in fashion in the middle ages, in which not only the whole family, but favorite domestic animals, hunting-dogs, cats, etc., repose together, excite our liveliest astonishment. In those days, the aristocracy did not find it undignified to share their couches with friends or guests who sought their hospitality. It was, on the contrary, considered a mark of sincere friendship. But it is now commonly believed that where two persons sleep together, one abstracts from the other some amount of vital force. This is especially the case where old and young persons share the same bed. Besides, in a room where there is no decided current of air, the emanations from the lungs and skin of the sleeper poison the atmosphere for a considerable distance. In the public wards of great hospitals, never less than two and a half feet is allowed between the beds for this reason. In the sleeping apartments of royalty and nobility, single beds are everywhere the rule, and nowhere the exception. The Emperor of Germany sleeps upon a narrow bed and a hard matrass. The single bed covering is a wadded silk quilt. The Emperor and Empress of Austria take their royal slumbers on similar beds, with the same description of coverlet.

It is beginning to be understood that the sleeping in the same beds of two or more persons is detrimental to health, and especially in the case of the young sleeping with older persons, it is decidedly injurious to the former. A not uncommon cause of loss of vital powers is the young sleeping with the aged. This fact, however explained, has been long remarked, and is well known to

every unprejudiced observer. But it has been most unaccountably overlooked in medicine. I have, on several occasions, met with the counterpart of the following case: A physician gives the following touching the latter fact: "I was a few years since consulted about a pale, sickly and thin boy of about five or six years of age. He appeared to have no specific ailment; but there was a slow and remarkable decline of flesh and strength, and of the energy of all the functions—what his mother very abruptly termed 'a gradual blight.' After inquiring into the history of the case, it came out that he had been a very robust and plethoric child up to his third year, when his grandmother, a very aged person, took him to sleep with her; that he soon after lost his good looks, and that he had continued to decline progressively ever since, notwithstanding medical treatment." The boy was removed to a separate sleeping apartment, and his recovery was very rapid.

It is not with children only that debility is induced by this mode of abstracting vital power. Young females married to very old men suffer in a similar manner, though not to the same extent. These facts are often well known to the aged themselves, who consider the indulgence favorable to longevity, and, therefore, often illustrate the selfishness which, in some persons, increase with their years. Where two persons occupy the same bed the air which is taken into the lungs is much more impure than it would otherwise be, each person being compelled to rebreathe a portion of the poisonous air which has been exhaled by the other. Then again, the poisonous exhalations from the body of one comes in contact with and are absorbed by the skin of the other. Children are more susceptible to such influences than

grown people, and their health is more readily impaired. The belief that elderly, sickly people gain strength and vitality by sleeping with the young and strong, is a fallacious one. It injures both, but the younger person suffers most.

During the night there is considerable exhalation from our bodies, and at the same time we absorb a large quantity of the surrounding air. Two healthy young children sleeping together will naturally give and receive healthy exhalations; but an old, weak person near a child, will, in exchange for health, return weakness. A sick mother near her daughter communicates sickly emanations to her; if the mother has a cough of long duration, the daughter will some time cough and suffer by it; if the mother has pulmonary consumption, it will ultimately be communicated to her child. It is known that the bed of the consumptive is a powerful and sure source of contagion, as well for men as for women, and the more so for young persons. Parents and friends ought to oppose as much as is in their power the sleeping together of old and young persons, of the sick and of the healthy. Another reason ought to forbid every mother or nurse keeping small children with them in bed; notwithstanding the advice of prudence, no year passes that we do not hear of a new involuntary infanticide. A baby full of life, health and vigor in the evening is found dead the next morning, suffocated by its parent or nurse.

Children whom grandmothers doat upon, and have them nestling in their bosoms at night, are invariably pale and sickly in their appearance, and when attacked with the illnesses to which children are subject, rarely recover. Mistaken kindness destroys them slowly.

Two sick persons should never occupy the same room

at the same time. They poison each other, not only in body, but in mind. One reason why hospitals become such pest-houses is because of the large number of sick persons brought into near proximity. The greatest possible care should always be given to keep the air of a sick-room pure by frequent changes, and, if needful, by disinfectant. Every person ought to understand the way to use disinfectants, so as to have them produce the best results with the least harm. It is often well to have two rooms for a person who is very sick, and to change from one room to another occasionally. This gives an opportunity to keep the air and bedding pure and sweet. The very walls, floors, carpets, bedding, and furniture of a sick-room absorb and retain the effluvia from those who are very sick, and thus contaminate the room permanently, unless great precaution is taken to prevent it.

More quarrels arise between brothers, between sisters, between hired girls, between school girls, between clerks in stores, between apprentices, between hired men, between husbands and wives, owing to electoral changes through which their nervous systems go by lodging together night after night under the same bed clothes, than by any other disturbing cause. There is nothing that will derange the nervous system of a person who is eliminative in nervous force, as to lie all night in bed with another person who is absorbent in nervous force. The absorber will go to sleep and rest all night, while the eliminator will be tumbling and tossing, restless and nervous, and wake up in the morning fretful, peevish, fault-finding and discouraged. No two persons, no matter who they are, should habitually sleep together. One will thrive and the other will lose. This is the law, and in married life it is defined almost universally.

SLEEP FOR BRAIN-WORKERS.

In a late number of the College Courant is an article on sleep, by Dr. G. W. Beard, from which we make the following extract: "Students who are really faithful, laborious brain-workers need all the sleep they can get, whether at night or in the day time. The night is the most appropriate season for sleep, and yet we should never hesitate to take a nap in the day time whenever we find it necessary. Amid the cares and responsibilities of our modern civilization, there are unnumbered interruptions and contingencies that make it practically impossible for us to obtain our full amount of sleep in the hours that are usually devoted to that purpose. Now there is no law so imperative on man as the law that requires us to sleep. If we deny ourselves of it, if we get behind, and, to use the expression of the street, fall into debt to Nature in this respect, we must improve the first opportunity to make ourselves good, else we shall ultimately fail. A brain-worker who religiously enjoys a liberal amount of sleep, may preserve his health and elasticity, even though he violates every other law of hygiene. On the contrary, he who faithfully observes all the rules of diet, of exercise, and of labor, yet denies himself of sleep, is really guilty of all, and can by no means escape unpunished. There is no appeal from this law. There is no virtue that can redeem its violation. It admits of no atonement. To sleep is the one great hygienic commandment. It is the Alpha and Omega, the beginning and the end, the first and last of the great laws of mental hygiene. He who understands and obeys this law, really understands and obeys the whole hygienic decalogue, for no one can long

sleep well who persistently disregards the other laws of health. Sleep is one of the best of our thermometers of health. By the quantity and quality of sleep that our patients can take, we can best judge of their daily condition, and of their progress toward recovery. We always feel assured that whatever improves the sleep of the exhausted invalid, to that degree helps him towards recovery, and that whatever disturbs this sleep, to that degree brings on relapse and disease. Sleeplessness is one of the earliest and most constant symptoms of insanity, of hypochondria, and of all the nameless forms of nervous derangement. Whenever, therefore, we find we are not sleeping as well as we are wont, when our dreams are peculiarly dark, and ugly, and distressing, and leave unsightly scars in the memory, when we roll, and toss, and worry through the watches of the night, anxiously waiting for the day, when we awake long before our accustomed hours of rising and find no pleasure in the morning nap, then may we suspect that our bark is nearing the quicksands and shallows, and then without delay should we examine our charts, revise our calculations, and according to our best judgment return to the channel from which we have suffered ourselves to be driven."

Dr. Alexander was often heard to say in substance as follows: "Clergymen, authors, teachers, and other men of reflective habits, lose much health by losing sleep, and this because they carry their trains of thought to bed with them. The best thing one can do is to take care of the last half hour before retiring. Devotion being ended, something may be done to quiet the strings of the harp, which otherwise would go on to vibrate. Let me commend to you this maxim, which I somewhere learned

from Dr. Watts, who says that in his boyhood he received it from the lips of Dr. John Owen—a very good pedigree for a maxim: “Break the chain of thought at bedtime by something at once serious and agreeable. By all means break the continuity, or sleep will be vexed, if not driven away.

“Students, as a class, do not sleep enough. There is no law so fundamental and imperative on the student, as the law which requires him to sleep, and no other law does he so systematically and recklessly ignore. It is a popularly accepted fallacy that students and literary men do not require as much sleep as mechanics and laborers. Physiology shows us that during the operation of the intellect, rapid changes of tissue take place, and that a few hours of close application to thought and study exhaust the system more than two or three times the same period devoted to manual labor. It is evident that in order to compensate for this greater waste of tissue, that the brain work will require more sleep than muscle work. In the violation of this first great hygienic commandment, is found the secret of most of the special diseases to which the student is liable. To this cause can be traced the eye affections that are so common. By neglecting to obtain sufficient rest, the system becomes relaxed and its tone lowered, thereby inviting disease, of which these organs being especially overtaxed and weakened, are the first to become sensible. Anything, therefore, which is intended to increase our facilities for sleeping, is of the highest importance and interest.”

Our educators, nearly one and all, forget that as the sun goes down—to use the popular phrase—and night comes on, school-girls should put away their books and get themselves ready for sleep. This is not only neces-

sarily true in the form in which I state it, but it ought to be under a very liberal construction of the statement. School-girls should not only refrain from study during that part of the day in which there is no light on that portion of the earth which they occupy, but they should cease to study so long before the sun goes down as to enable them, by change of intellectual activity, to get out of their brains the impressions which study during the day has made. Brains, should be empty when one falls asleep. A brain loaded with mental impressions is almost sure to be a brain loaded with blood. Sleep is a condition of existence largely induced by, and in the main dependent upon a condition of the brain in which there is the least possible quantity of blood in circulation consistent with healthful organic life. If one cannot contrive, by habit or manner of life, to empty his brain to a certain degree of the quantity of blood which flows through it and induces thought, he cannot with any degree of certainty have good, sound health and refreshing sleep.

Study as much as you please, work your brains to their utmost capacity, but see that you do not rob them of the rest derived from sleep, and which is so indispensable for healthy and long-continued intellectual labor. If you neglect this warning, be sure the time will come when you cannot sleep, and then you will be in danger of losing your reason.

Good scholars need more sleep than they are inclined to take. The interest in lessons, the increased activity of the brain, makes them wakeful, and often the more they need sleep, the less able are they to find "the dominions of the drowsy gods."

In the majority of our large schools I find the hour of retiring to be ten o'clock, and of rising at six o'clock.

This will do for some, but the younger and more sensitive need from nine to seven in winter, and from nine to six in summer. I would give them an hour longer during the long nights, because at best, students study more by artificial light than their eyes can well endure. In cold weather they are more inclined to keep close to books, less inclined to out-door exercise, and hence are better off in bed cold mornings than anywhere else. The indications of all nature are that at this season we should sleep up, rest up, and be ready for summer gayeties. But in modern days, between bright lights, gay colors, lectures, concerts, and parties of varying brilliancy, the brain and optic nerve are over stimulated, and summer finds too many of our young ladies, whether in school or in social life, in need of summer restoratives, such as the seaside, the mountains, and mineral springs afford. Students do not get as much sleep as their hours in bed seem to indicate. If they have studied closely and to advantage in the evening, it takes some time to arrest the mental action, to cool off head-wise, so to speak. Intellectual activity makes them dislike to retire at night, and brain weariness makes them dread to rise in the morning, and they get up feeling wretched, and as if they never did and never could learn anything. Hence, while they might retire before the required time, they do not want to, and would not get any sleep if they did, while the school world in which they are so much interested is all astir. When once asleep they go on until a late hour if not called by duty, as is shown by the many who sleep over the breakfast hour, and go without that meal if not obliged to rise at an early hour for morning prayers. Instead of giving a general permission to retire early, and requiring all to rise early, we

would reverse the order, and require all to retire early, and let them rise when they had slept all they wanted to.

Those who think most, require the most sleep. Time gained from necessary sleep is not saved, but lost. Mind and body will both suffer. Most people, however, do not think enough to make early rising particularly dangerous. It is the hard-working professional man, the close student, or the man of business with many cares upon his mind, who suffers most from loss of sleep.

A recent medical writer of good authority says: "It is certain that in our times, among our brain workers, there are 999 who do not sleep enough to one who sleeps too much."

SLEEPING ROOMS.

As one-third of our existence is spent in our chambers, in the unconscious happiness of sleep, and as good health is impossible without the habitual breathing of a healthy atmosphere, the importance of inhaling pure air is self-evident. No sleep can be sound and healthful unless the person is comfortably warm; and many a man who has gone to bed in health has awakened with a mortal malady, or one involving lifelong suffering, by having been exposed to a draft of air upon some part of the body while asleep, either from an open door, an open window, a broken pane, or an unstopped crevice. Three things, then, are indispensable to the healthfulness of a bed-chamber; we must be comfortably warm, must be supplied with a pure air, not very cold. Many persons have met their death by means of an open window exposing them to a change in the weather during the night. There is no advantage in going to bed or undressing in

a cold room; all invalids and sedentary persons should undress, sleep and rise in a room not lower than fifty degrees; and if it was seventy while rising so much the better. The old and sickly may sleep on feather beds in cold weather; if they sleep on mattresses it often requires so much bed clothing to keep them comfortably warm that it oppresses the breathing, and so confines the foul air above the bed as to make them restless.

There is reason to believe that more cases of dangerous and fatal diseases are gradually engendered annually by the habit of sleeping in small unventilated rooms, than have occurred from a cholera atmosphere in any year since it made its appearance in this country. Very many persons sleep in eight by ten rooms; that is, in rooms the length and breadth of which multiplied again by ten for the height of the chamber would make just eight hundred cubic feet, while the cubic feet for each bed according to the English apportionment for hospitals, is twenty-one hundred feet. But more, in order "to give the air in a sick room the highest degree of freshness," the French hospitals contract for the complete renewal of the air of a room every hour, while the English assert that double the amount, or over four thousand feet an hour, is required. Four thousand feet of air an hour! and yet there are multitudes who sleep with closed doors and windows in rooms which do not contain a thousand cubic feet of space, and that thousand feet is to last all night, at least eight hours, except such scanty supplies as may be obtained of any fresh air that may insinuate itself through little crevices by door or window. Multitudes thus perish prematurely, and infant children wilt away like flowers without water.

If two persons are to occupy a bedroom during the

night, let them step on to a weighing scale as they retire, and then again in the morning, and they will find their actual weight is at least a pound less in the morning. Frequently there will be a loss of two or more pounds, and the average loss throughout the year will be a pound of matter, which has gone off from their bodies, partly from the lungs and partly through the pores of the skin. The escaped matter is carbonic acid and decayed animal matter or poisonous exhalation. This is diffused through the air in part, and part absorbed by the bedclothes. If a single ounce of wood or cotton be burned in a room, it will so completely saturate the air with smoke that one can hardly breathe, though there can only be one ounce of foreign matter in the air. If an ounce of cotton be burned every half hour during the night, the air will be kept continually saturated with smoke, unless there be an open window or door for it to escape. Now the sixteen ounces of smoke thus formed, is far less poisonous than the sixteen of exhalations from the lungs and bodies of two persons who have lost a pound in weight during the eight hours of sleeping; for while the dry smoke is mainly taken into the lungs, the damp odors from the body are absorbed both into the lungs and into the pores of the whole body. Need more be said to show the importance of having bedrooms well ventilated, and of thoroughly airing the sheets, coverlets, and mattresses, in the morning, before packing them up in the form of a neatly-made bed? What, then, must be the case with people who, neglecting one of the most essential laws of life, shut themselves up in tightly closed rooms, in which during the night at least one-third of their lives is spent? They are plainly sapping the foundations of health. They do not die speedily, like fish in the unchanged bowl of

water, because they are not equally confined to their rooms, and because, in spite of all their ignorant precautions, some fresh air gains access to them through crevices. But they languish and feel unfreshed by sleep, they become consumptive and die early, and their offspring is sickly and without vigor.

There is nothing of more importance to the health of a family than pure air in their bed-rooms, especially where the rooms are small and the ceilings low, filled sometimes with three or four children, as I know to be the case within my knowledge. No matter how cold it is, every room should be fully ventilated for several hours every day; and if a small space can, without the draught striking the bed, be left open through the night, so much the better. Pure air in a bed-room cannot be too highly estimated. Every such room upon going into it, should smell as sweetly as the outside atmosphere. No good housewife and mother will have it otherwise. It costs neither time nor money to have it so. It is better to sleep in a room comfortably warm than it is to sleep in a very cold room, provided there is good ventilation, for the reason that less clothing is required to keep comfortable. The less clothing consistent with comfort, the better, whether awake or asleep. Warm air is just as pure as cold air, and ventilation is more easily secured when there is a difference of temperature between the air in a room and that outside. The best way of warming and ventilating sleeping rooms, is to have an open grate fire and open windows.

Robust persons may safely sleep in a room of a temperature of forty or under, but the old, the infant and the frail, should never sleep in a room where the atmosphere is much under fifty degrees Fahrenheit.

BEDS AND BEDDING.

The idea that the soft side of a plank makes the best couch when one gets used to it, was long ago exploded. It is true that the tired man or woman will sleep soundly on a hard bed, and habit may make the hardness dear to them. It is also true that Napoleon's soldiers slept while on their march homeward from Russia, and some of them may have become attached to locomotion and sleep united. We do not recommend softness but elasticity.

It is not true that a very soft bed is the most comfortable, any more than it is true that a very hard bed is to be preferred. Many people, however are incapable of drawing the distinction between feathers on the one hand and boards on the other. The best bed is one which shall be yielding enough to afford rest to the tired muscles, and yet firm enough not to envelop the figure, as does a feather or down bed. The reason of this is that the feathers, being non-conductors in the most perfect sense of the word, do not allow that ventilation of the surface of the body, which is an absolute necessity for health. By over-heating the spine, they cause troubled and dream-haunted sleep, and in many cases, disease. The covering for the bed should be sufficient in amount to keep the sleeper comfortably warm without over-heating him. Sleep to be refreshing must bring profound rest to the whole body, and especially to the brain and nervous systems, the great centers of activity. Now heat arouses these centers to activity, as every one knows practically if not theoretically. An English physician states in the *Lancet* that he has been able to secure sleep to his patients, when other means had failed, by applying ice to the spine. However this may be, we

know that overheating the same region will produce wakefulness.

The cackling of the goose is said to have saved Rome. The feathers of the same bird are dealing death to America. This feather bed was a tolerable institution in the days of log houses, with the free ventilation of a big fire-place and rifts in the roof through which the snow drifted in every winter storm. But now with tight houses and stoves that heat everything from cellar to garret, the case is altered. No amount of airing and sunlight will permanently redeem the bed from the odor of old feathers, which is anything but agreeable, and the more atrocious effete animal matter that has escaped from the sleepers that have sought repose here for generations past. One may imagine the internal impurity of a feather bed after it has been slept upon a month, a year; but five, ten, twenty years! That baffles imagination! The reeking secretions of, nobody knows how many, bodies, in some cases sick and dying bodies, are stowed away in these ticks, and when they are heated up by your kindly warmth, they come out and attack you with their countless little envenomed darts, just when you are least active, least able to resist them. Is not this reason enough why languor and headaches follow such a night's rest? I always shudder when I get into a "hospitable" feather bed. The want of feathers is altogether artificial, arising from a disregard of the physical and moral well-being of infants and children; and he who has the good fortune never to have been accustomed to a feather bed, will never in health need or desire one, nor in sickness, except in cases of great morbid irritation, or excessive sensibility, or some disease in which the pressure of a firm or elastic substance might occasion pain. But when a

rational regard to the preservation of health shall pervade the community, feathers will no more be used without necessity or medical advice than ardent spirits will be swallowed without the same necessary advice. The physician has frequent occasion to see persons who are heated, sweated, enfeebled, by sleeping on feathers, as if from a fit of sickness; enervated, dispirited, relaxed and miserable.

Feather beds are open to numerous objections. In the first place, the feathers used for bed filling are seldom prepared and purified. As stripped from the skin of fowls, the small feather shafts are charged with animal matter that undergoes a slow but sure putrefactive change. The result may not be enough to perceptibly affect the atmosphere of a bedroom, but enough to be unhealthy. Now, in country places, nothing is more common than the use for bed-making purposes of feathers that have not been subjected to any purification. Town upholsterers purify, or profess to purify, the feathers employed by them for bedding, but we are called upon to inquire in what the purification consists. It consists in baking, beating and in some cases washing. Granting that these processes are followed, that the feathers are purified, and sewed when absolutely pure in the ticking, yet what then? Night by night animal emanations from the sleeper get absorbed into the feathers, and there remain, in despite of shaking up, exposure to the air, or any other process of domestic purification that either is or can be adopted. I have assumed the best conditions: take now such as are the ordinary conditions of not the worst. Feathers never wear out, it may be said—never come to an end. To-day a patient afflicted with fever or other mortal disease may lie on a feather-bed, to-morrow

he may die upon it, then after a few days the bed may be sold, and then who shall be answerable for what becomes of it, or the injury it may do? We know what ought to be done with it at the very least: the feathers ought to be taken out and purified before closure in a feather bed again. Even then the idea of using such feathers is repugnant, but frequently no sort of purification is performed, in which case the result may be easily imagined.

Feathers, except in very cold weather, are unwholesome, because they return an excess of warmth about the body, and also because they absorb the insensible perspiration thrown off by the pores, and permit the body to reabsorb the excrementitious matter. A bed of soft, fresh straw, evenly distributed and covered with a thin cotton or woollen mattress, may be a good resting place, and furnish sweet sleep. But how can man or woman rise refreshed, from a couch of straw or a shuck mattress which has been in nightly use without renewal for a series of years? Yet there are portions of this very land of plenty where travelers are put to sleep upon just such beds as this. Every man in grazing districts may own a dozen or two coarse-wooled sheep. These and their increase will in a short time give him wool mattresses, than which none are more pleasant, more wholesome, or durable. The tag-locks washed and carded should be hoarded by every farmer's wife for this purpose. In cities and villages, and in the more populous parts of our country, those who can afford good sleeping places generally have them. The degree of refinement and cultivation, as well as wealth one has attained, may be easily read by one glance at their sleeping apartment. Cleanliness and comfort are perfectly consistent with

honest poverty, for straw and water are cheap everywhere in the country, and within the reach of all. As a general rule, the better care a man takes of his body, in feeding it with skill, clothing it with discretion, and giving it due and refreshing sleep, the more work he can do, and the higher the quality of his work. A vigorous, energetic, and hardy body may patiently endure for a series of years gross violations of its fundamental laws, but the day will come when it will demand full retribution for every dishonored requisition. The rules of physical well-being are like those laws that Moses received on the granite of Mount Sinai. Tobacco, broken sleep, bad fare, cold, dampness, miasms, will tell on every frame at last; and when Nemesis comes he requires eye for eye, tooth for tooth, stripe for stripe, burning for burning.

Considering the real worth of good husk mattresses, the ease with which they are made, and the little expense attending their manufacture, we have often wondered that they were not found in every home and in every sleeping apartment. In the country their cost is comparatively nothing, while for real comfort they are second to none but the costly hair mattresses. In the judgment of many people the old-fashioned straw bed is the best for health, because it must be renewed quite frequently, and thus is kept fresh and pure. A large proportion of what a man eats and drinks in a day passes off imperceptibly through the skin, and of course a considerable percentage of it at night. If, then, the sheets of a bed require frequent changing, as every thrifty housekeeper knows they do, what shall be said of the condition of the thick mattress which absorbs and retains so much of the poisonous excretions? How often should they be

cleansed? How many years is it since yours were cleansed? Dr. Dio Lewis writes: "Of the eight pounds which a man eats and drinks in a day, it is thought that not less than five pounds leave his body through the skin. And of these five pounds a considerable percentage escapes during the night while he is in bed. The larger part of this is water, but in addition there is much effete and poisonous matter. This being in great part gaseous in form, penetrates every part of the bed. Thus every part of it—mattress, blankets, as well as sheets—soon become foul and need purification. The mattress needs this quite as much as the sheets. To allow the sheets to be used without washing or changing three or six months, would be regarded as bad housekeeping; but I must insist if a thin sheet can absorb poisonous excretions of the body to make it unfit for use in a few days, a thick mattress, which can absorb and retain a thousand times as much of these poisonous secretions, needs to be purified often certainly. A sheet can be washed. A mattress cannot be renovated in this way. Indeed, there is no other way of cleaning a mattress but by steaming or picking it to pieces, and thus in fragments exposing it to the direct rays of the sun. As these processes are scarcely practicable with any of the ordinary mattresses, I am decidedly of the opinion that the good old-fashioned straw bed, which can every three months be exchanged for fresh straw, and the tick washed, is the sweetest and healthiest of beds. If in the winter season the porousness of the straw bed makes it a little uncomfortable, spread over it a comforter or two of woolen blankets, which should be washed as often as every few weeks. With this arrangement, if you wash the bed-covering as often, you will have a delightful,

healthy bed. Now, if you leave the bed to air, with open windows during the day, and not make it for the night before evening, you will have added greatly to the sweetness of your rest in consequence, and to the tone of your health. I heartily wish this change could everywhere be introduced. Only those who have thus attended to this important matter can judge of its influence on the general health and spirits."

The desire of an energetic housekeeper to have her work completed at an early hour in the morning causes her to leave one of the most important items of neatness undone. The most effectual purifying of bed and bed-clothes cannot take place if no time is allowed for the free circulation of pure air to remove all human impurities which have collected during the hours of slumber. At least two or three hours should be allowed for the complete removal of atoms of insensible perspiration which are absorbed by the bed. Open the window as wide as possible, and set open the door also. Unless there is a thorough draught, there is no true ventilation of a sleeping-room. The only exception to this rule is during high winds, when the door cannot safely remain open, and in very wet and foggy weather. Every day this airing should be done, and occasionally bedding constantly used should be carried into the open air, and when practicable left exposed to the sun and wind for half a day. There is too little attention paid to this important requisite of health. The wise housekeeper should see to it that all the beds should be aired immediately after being occupied. The impurities which emanate from the human body from insensible perspiration, are made up of minute atoms, which if allowed to remain long, are absorbed by the bed, and will then, to

a greater or less extent, vitiate the air for a considerable time afterward. Let the occupant throw the bed open on rising, and as soon as is convenient open the windows and ventilate the sleeping room. One hour's early ventilation is worth two hours' late airing.

If a person sleeps upon the back, no pillow is needed. If one sleeps upon the side, a pillow should be used thick enough to support the head in a direct line with the body. No more. Curled hair is one of the best materials for pillows. Feathers should never be allowed about a bed in any form. For pillows they are especially injurious, as they partly surround the head and keep it over-heated, which weakens the scalp and produces a tendency to falling out of the hair, congestion of the head and headache. Then again, the effete emanations which are always being thrown off from feathers are taken directly into the lungs with the inspired air.

The perfection of dress, day or night, where warmth is the desideratum, is that which confines around the body sufficient of its own warmth, while it allows escape to the exhalations of the skin. Where the body is allowed to remain in its own vapors, we must expect an unhealthy effect upon the skin. Where there is too little ventilating escape, insensible perspiration is checked and something analogous to fever supervenes. Foul tongue, ill taste and lack of morning appetite betray the result.

A blanket is a cooler covering than a sheet in summer, because it allows the perspiration to escape. Sheets feel cooler at first, because they carry off the heat of the body quicker; but when they become as warm as the body, they feel warmer, confining the perspiration.

Bed curtains are unhealthy, because they confine the air around us while we are asleep.

BEDS AND BEDDING FOR THE SICK.

A few words in relation to bedding and bedsteads, principally regarding patients who are entirely or almost entirely confined to their beds.

Feverishness is generally supposed to be a symptom of fever. Sometimes it is, but usually it is a symptom of bedding. The patient has had re-introduced into the body the emanations from himself, which day after day and week after week have saturated his unaired bedding. In looking out for an example in order to show what not to do, we should take the specimen of an ordinary bed in a private house; a wooden bedstead, two or even three mattresses piled up above the height of a table, with a valance attached to the frame. Nothing but a miracle could ever thoroughly dry or air such a bed and bedding. The patient must certainly alternate between cold damp after his bed is made, and warm damp before, both saturated with organic matter, and this from the time the mattresses are put under him until the time they are picked to pieces, if this is ever done.

If you consider that an adult in health exhales by the lungs and skin, in the twenty-four hours, three pints at least of moisture, loaded with organic matter ready to enter into putrefaction; that the quantity in sickness is often greatly increased, the quality is always more noxious—just ask yourself next where does all this moisture go to? Chiefly into the bedding, because it cannot go anywhere else. It stays there, because with the exception of a weekly change of sheets, scarcely any other airing is attempted. A nurse will be careful to fidgetiness about airing the clean sheets from clean damp, but

airing the used sheets from noxious damp will never even occur to her. Besides this, the most dangerous effluvia we know of are from the excreta of the sick. These are placed, at least temporarily, where they must throw their effluvia into the under side of the bed, and the space under the bed is never aired; it cannot be with our arrangements. Must not such a bed be always saturated, and be always the means of introducing again into the body of the unfortunate patient who lies in it, that poisonous matter which nature is trying to get out of the system? If a bed is higher than a sofa, the patient often prefers not to get out at all, rather than undergo the fatigue of getting out. If the bed were a low one, he might often feel like taking a few minutes' exercise every day in another room, or even in the open air. It is so very odd that people never think of this, or of how many more times a patient who is in bed for twenty-four hours is obliged to get in and out of bed than they are, who only get in and out of bed perhaps once during the twenty-four hours.

A patient's bed should always be the lightest spot in the room; and he should be able to see out of a window. It is scarcely necessary to say that the old four post bed with curtains, is utterly inadmissible, whether for the sick or the well. Hospital bedsteads are in many respects very much better than private ones. There is reason to believe that not a few of the cases apparently resembling scrofula among children, proceed from the habit of sleeping with the head under the bed-clothes, and so inhaling air already breathed, which is further contaminated by exhalations from the skin. Patients are sometimes given to a similar habit, and it often happens that the bed-clothes are so disposed that the patient must necessarily

breathe air more or less poisoned by exhalation from the skin. A good nurse will be careful to attend to this. It is an important part, so to speak, of ventilation. It may be worth while to remark, that where there is any danger of bed-sores, a blanket should never be placed under the patient. It retains damp, and acts like a poultice. Never use anything but light blankets as bed covering for the sick. The heavy cotton impervious counterpane is bad, for the very reason that it keeps in the emanations from the sick person, while the blanket allows them to pass through. Weak patients are invariably distressed by a great weight of bed-clothes, which often prevents their getting any sound sleep whatever.

One word about pillows. Every weak patient, be his illness what it may, suffers more or less from difficulty in breathing. To take the weight of the body off the poor chest, which at best is hardly up to its work, ought therefore to be the object of the nurse in arranging his pillows. Now what does she do, and what are the consequences? She piles the pillows one upon the other like a wall of bricks, the head is thrown upon the chest, and the shoulders are pushed forward, so as not to allow the lungs room to expand. The pillows, in fact, lean upon the patient, not the patient upon the pillows. It is impossible to give a rule for this, because it must vary with the figure of the patient. Tall patients suffer much more than short ones, because of the drag of the long limbs upon the waist. But the object is to support, with the pillows, the back below the breathing apparatus, and above the hips, so as to allow the shoulders room to fall back, and to support the head, without throwing it forward.

The suffering of exhausted patients is greatly increased by neglect of these points. And many an in-

valid, too weak to drag about his pillows himself, slips his book or anything at hand behind the lower part of his back to support it.

THE SPARE BED.

To those who have occasion to keep school and board around, to the mechanic who works from five to forty days in a place, to itinerant ministers, and to those who visit their friends and relatives at a distance, these words, spare bed, have a good deal of meaning. Every gentle housewife prides herself upon one or more spare beds. And, as quite a number have dated their death sickness from sleeping in the spare bed, perhaps a brief description may not be amiss. The spare bed is generally to be found in some out-of-the-way corner, or place, the farthest removed from fire, or the room occupied by the family; and once made up, clean and nice, is seldom touched or aired for weeks or months together; and, as a matter of course, it gathers dampness. And not only is the bed itself damp and unfit for any one to occupy, but the room that the bed occupies is quite as bad, the whole atmosphere being perfectly dead, and unfit for the lungs. The lungs sustain as intimate a relation to life and health as the stomach; and it is just as necessary that the lungs should be fed with their own proper food, fresh, pure air, as that the stomach should have healthy, nourishing food in order to the sustaining and building up of the body. As an instance showing the position and condition of the spare bed and the room that it occupies, we may take almost any country residence. The house chosen as an example consists of an upright with a wing and an L attached. The kitchen occupies

the L, the dining-room the wing, and the parlor, or square room, the upright. The spare bed is to be found in the bedroom off from the parlor. The kitchen is used every day of the year, the dining or sitting-room is used a part, perhaps one-third of the time, but the parlor is seldom used. Its door or doors are closed lest the furniture should get injured, and its windows are curtained so that the carpet shall not fade by the sunlight. A fire is not kindled in the parlor often; and, if a fire is built in the parlor, it is seldom that the parlor bedroom is opened to be heated or aired. Of course there are many worthy exceptions to the above rule; yet the picture is not overdrawn.

On one occasion, having need to see a minister early in the morning after conference adjourned, I went to his boarding place, one of the choicest in the city. He and his room-mate were making their toilet, and revealed their presence by hoarse and almost incessant coughing. Their entertainment had been most hospitable, but they had been assigned to the "spare-room," in that case an elegant apartment, reserved for favored guests. The spacious and yielding bed had an inviting look, but a damp and mouldy smell. Indeed, the whole apartment revealed an alarming unfamiliarity with sunshine. But it was the "best room," and any intimation from them that both room and bed were damp, had seemed rude and ungrateful. So they occupied the room and bed, and contracted colds, from the effect of which one has since died, and the other still suffers. Said a pale and haggard sufferer not long since, "I think I should be able to visit my appointments at least a few times more, if the friends would not persist in putting me away in their chilly spare room and damp beds." When such cases

have run their course, doctors may say, "Died of hepaticized lungs;" but more will understand them if they say, "Died of sleeping in spare-beds." The motives of the good people cannot be questioned; but unwittingly they literally "kill with kindness." I protest if we are to occupy the "spare room," and sleep in the "spare-bed," they should be dry and well aired. We certainly do not elect to be suicides from courtesy, and you would not give us Death for a bed-fellow.

House-keepers are highly censurable for not keeping their beds well aired, dry, and ready at all times for use. Many are the deaths that have resulted from the improper use of damp beds, to say nothing of colds, asthmas, bronchitis, etc., and their attendant evils. Too much care cannot be given to this department of household management. When a stranger or friend is about to visit many families, what a process of airing one sees going on with beds and bedding; all right enough in its place, but generally such hasty dryings are not always effectual, for spare rooms and spare beds are proverbially damp, and not easily dried.

Damp rooms and damp beds are the sepulchres and winding-sheets of living men.

EVIL HABITS OF DRESS.

It requires but little thought and observation to convince reasoning minds that bad habits of dress are efficient causes to undermine the constitution and impair health. Health reformers do not put too much stress upon the necessity of right habits in this direction. Every part of the body should be clothed physiologically.

We mean by this that every article should be so worn as not to interfere with the full and perfect function of any part. It should be the rule that everything put on should fit so easily and comfortably as not to be felt. It is often the case that different parts are suffering from severe pressure, and doing much injury to the general health, and we do not notice it because we have become accustomed to it. It is almost second nature. Many are wearing skirt and drawer bands about the body, supporting the weight of the clothing on the hips, and suffering from weakness and displacements, who seem to be entirely ignorant of the cause of their afflictions. Question them in regard to their clothing and they will say they were not aware of its harming them. After the attention is directed to it, and changes have been made in the dress, they will become sensible of the fact and acknowledge that bad mode of dress injured them. We must not flatter ourselves that we can enjoy perfect health if we dress improperly.

Every organ is formed for a particular purpose, a special work in the body, and each organ in the body is benefited by the work of the other organs. If the function of any part is restricted, all parts suffer more or less. No structure is so inconsiderable that it may be hindered in function without the whole system being affected in proportion to the obstruction. The smaller organs are supplied with arteries, capillaries, veins, and nerves. The arteries are vessels, or tubes, through which the fluid passes containing the atoms to build up and vitalize the tissues. In the capillaries, the work of separating the old particles and adding the new is done. The veins absorb the worn-out and useless atoms, and convey them to organs which expel them from the system. The

nerves preside over this work. These vessels and this work are too minute to be seen without the aid of a microscope; therefore it can readily be perceived that slight pressure on these delicate structures would render the work imperfect, and thus induce disease. In health, the circulation is equalized. The first condition of disease is an unbalanced circulation—too much blood in some parts, too little in others. Both portions sustain an injury. One part is weakened for want of supplies, and other parts are relatively weakened from being burdened.

Cold extremities and congested heads are the prevailing complaint now-a-days. And how could we expect it to be otherwise when the feet, as also other parts of the body, are so badly treated? Shoes and boots are not made to fit the feet and bring comfort to the wearer, but the feet are squeezed and forced into them, making the tender, sensitive flesh yield and be shaped by its covering, depriving the tiny structures, of which the feet are composed, room to perfectly perform their health-conducting functions. The blood-vessels of the feet are connected with those of the head. The same vitalizing fluid flows through the one that goes through the other. The nerves of the feet communicate with those of the brain. It is not uncommon for men and women to say they have had cold feet ever since they could remember. We do not doubt the truth of it, for children are bandaged and tightened up as soon as they have an independent existence.

Though they are not strapped to a board like some of the Indian babies, nor the Chinese wooden shoes put on them, yet they are subjected to unhygienic habits which greatly mar health and happiness; and these habits

interfere with growth and development, as well as function. The nerves derive their peculiar vital property from the blood. If the flow of blood to parts is checked, the nerves are not fully nourished, and there is deficient sensation. Cases are not rare in which individuals cannot tell whether their feet are cold or not, till brought in contact with some part of the body that has natural feeling. The nerves, having been abused until their power is nearly gone, are paralyzed. With these facts about the feet, much more may be said of the abuse received by the vital organs in the chest and abdomen, by dress.

The office of the lungs is considered the most important in the body. We can live but a few minutes without breathing, but other functions may be suspended for days and weeks, and life not be destroyed. The blood gets its vitality from the air. The lungs are the organs in which the vitalizing process is effected. They perform a two-fold work, that also of eliminating impurities from the blood, and so intimately are life and its joys related to the quality of our blood that language cannot exaggerate the folly of the fashion which prevents the full expansion of the chest and the complete function of respiration. The lungs are entirely passive in breathing. They are acted upon by muscles. The broad muscle lying between the organs of the chest and abdomen is the principal agent in inspiration, assisted by the muscles of the chest. In inspiration it contracts, extending the ribs, expanding the chest, pressing down the organs below it. The air rushes into the air cells in proportion as the chest is dilated. In expiration the abdominal muscles contract, drawing down the ribs, compressing the viscera, thus diminishing the cavity of the chest, forcing out the air. The muscles are to the lungs what

handles are to bellows. Confine the handles of the bellows and they are comparatively useless. The power of the bellows is according to its capacity. So it is with the lungs; if their capacity is diminished by wrong habits of dress, life and its enjoyments are proportionately diminished; and yet thousands upon thousands are pursuing a course that is bringing upon themselves and others all manner of suffering, consumption, and a premature grave.

Though men do not directly suffer from corsets, tight waists, bands, belts, ligatures, and garters, indirectly through mothers they reap a bitter reward. Children do not possess the vigorous and robust health enjoyed by parents and grandparents. Sons and daughters are alike in the descending scale. Frequently the pernicious habits of the parents are more manifest in the offspring than in themselves. It is sometimes urged as an argument to disprove the injurious effects of the use of tobacco, that some have attained the age of seventy or eighty years in apparent good health who have used it for a long time, it not seeming to hurt them. But look at their children. It tells in them. We find them inheriting a more or less irritable and delicate constitution without the ability to accomplish or enjoy as much, or live as long, as the parent. Self-preservation is the first law of nature. This law inheres in each organ. The vital instinct of each as it recognizes the approach of anything injurious resists it, and presses it along to its neighbor, which resists in like manner till it is expelled from the primary vital supervision. The organs which are secondarily essential to life suffer. The reproductive organs are not essential to individual life, but are essential for procreation. Thus the iniquities of the fathers

are visited upon the children. If the primary structures are imperfect, the secondary must be. This law applies to all unphysiological habits.

The Lancet, in speaking of the women of the period, whom it describes as a race of chlorotic girls, acting wives and inefficient mothers, says that the scrofulous, consumptive, pimpled women who crowd physicians' waiting-rooms, and swallow every advertised remedy from Parr's Pills to Pancreatic Emulsion, would be strong vigorous and healthy, and need no medicine at all, if they followed a few simple directions. These are: to allow their own hair to be just bound down as a natural covering to their heads when out of doors; to clothe their bodies sensibly, without pinching themselves hideously into unnatural shapes; to wear well-shaped boots, in which they might walk comfortably and taste the pleasure of exercise.

It is wonderful what an amount of slow torture the people endure for mere fancy or fashion. A lady went to an oculist the other day, and began to state her case. He looked at her, and said, "Go home and loosen your dresses, and take off that load from the hips. Let me see your foot. Cut off those heels, and have toes wide enough to let the muscles act. When you give your eyes a chance, if they do not get well, I will look at them." This was treating her eyes. First remove the cause, and the effect will cease. The bodies are abused; and when nature is thus treated, it is manifested in the weakest part, perhaps in the head in the form of catarrh, perhaps in the lungs or throat.

Tight fitting clothes are a serious evil; but a far greater one is their unequal distribution upon the person. One part over-clothed, and another not half clad, is a

very common condition, especially among women and children. Women are governed by fashion; children are governed by women; and it is the great resource of fashion to produce new effects by piling on the textures, now here, and now there, and by leaving other parts exposed. If the declared purpose were to induce disease, no surer or more effectual way could be found to do it than this. The derangement of the circulation is direct and immediate. Its healthy equilibrium is destroyed; the thinly dressed parts lose their blood to the more vascular; and internal derangements give rise to various chronic bodily ailments.

One of the most important things to be considered in dress is the careful covering of the chest and back. Exposing the lungs by inadequate shielding of these portions of the body from cold, is too generally practiced, especially among the ladies. To cover the chest alone most carefully is not enough. There should be a thick covering between the shoulders. Sudden alternations of heat and cold are dangerous, especially to the young and the aged. Therefore clothing, in quantity and quality, should be adapted to the alternations of night and day, and of the seasons. And therefore, also, drinking cold water when the body is hot, and hot tea and soups when cold, are productive of many evils. Hall's Journal says: "The old and young delight in warmth; it is to them the greatest luxury. Half the diseases of humanity would be swept from existence if the human body were kept comfortably warm all the time." Be careful of your health, girls. Don't mind being called old fogy, because you wrap yourself up and never venture out in thin shoes. Better be an old fogy than a young corpse. When in a warm room, whether shop-

ping or visiting, even if you stay but a few minutes, loosen the furs and heavy outside wrappings. Neglecting to do this makes one specially liable to take cold in the throat and lungs.

There is good sound sense in the remark made by "Howard Glyndon" that "no dress should be worn habitually which prevents free egress into the street, or garden or the forest. Quite enough time is taken up in changing the shoes and in putting on hat, mantle, and gloves. If exercise out-of-doors has to be preceded by elaborate preparation, it will gradually fall into disuse." The average weight, all the year round of that portion of woman's clothing which is supported from the waist, is between ten and fifteen pounds. Are weak backs a wonder? Put on suspenders, girls!

WOMAN'S DRESS.

He who would labor for the physical redemption of woman in America, must begin with her dress. The prevailing modes constitute an insuperable obstacle to her physical development. Every humane physiologist has argued, expostulated, and implored. If American women should squeeze their feet until those members were in Chinese fashion, or should place a flat stone on the head until the brains were forced into the back of the neck, we might keep silent; but while they compress that part of the body which contains the organs of vitality—the heart, lungs, liver, and stomach—we must continue to resist their madness. In this part of the body is the fountain of life. The slightest pressure immediately reduces the size and activity of that fountain. He who has thoughtfully studied the inevitable results of the pre-

vailing style of dress at the waist will affect no surprise at those cold feet, that constipation, weak spine, short breath, palpitation of the heart, and congestive headache, which are the average characteristics of the health of American women. Given a live woman, a corset, the average tight dress, and the physiologist will deduce the morbid conditions I have named.

"Near my residence," says a widely known physician of eminence, "are three shops—a rum-shop, a candy-shop, and a corset-shop; I do not know which is the greatest evil. My practical suggestion is that, without corsets, the dress-waist should be full and loose, the skirt-bands buttoned about the waist much larger than the body, supported on the shoulders by suspenders, such as gentlemen wear, and attached to the bands at the same points. My own wife many years ago adopted the style I advise, and is greatly delighted with the results. The dress is much more artistic and beautiful than the plain waist, with the hard, ironlike ligature at the band. After twenty years' study of the subject of health and the causes of disease, if I were permitted to select from one hundred and one physiological blunders that one which I should most desire to see corrected, I should unhesitatingly name this particular feature of woman's dress."

The following excellent remarks are from The Household: "The ordinary dress that men wear diminishes their breathing capacity one-fourth: and what woman wears her clothing so loose as that? I call a dress too tight that you hit when you draw in the fullest possible breath. 'But my waist is naturally slender,' says one woman. She means that she has inherited small lungs. Her ancestors, more or less of them, compressed their lungs in the same way that we do, and it has become in

her case a congenital deformity. This leads us to one of the worst aspects in the whole matter—the transmitted results of indulgence in this deadly vice. And it shows itself in diminished vitality and in liability to take on disease of many kinds. A mother may even make her child scrofulous by her imperfect breathing during the period of gestation, and many a mother does so. Almost all the reading public, very possibly all whose eyes fall upon these lines, have been told again and again how the tightness of the clothing about the waist and abdomen (please remember my definition of tightness) displaces the yielding viscera within, pressing them upward upon the lungs and downward upon the pelvis, and produces directly or indirectly all the female complaints to which the generation is so largely subject. One medical writer declares that ‘this influence upon the organs in the lower part of the abdomen is so great that it furnishes to the medical profession nearly half its business,’ notwithstanding the fact that many women and girls from native delicacy keep their sufferings to themselves. The very list of these complaints is alarming, and there is no question but the public at large, and even the women themselves, have very little idea how much they suffer in this way from the effects of tight dress.

“Of course, in this form it does not end with the individual, unless she dies before marriage, or so utterly disables herself that she cannot bear children at all, which is not unfrequently the case. If not quite so bad as that, she is still often unable to complete her time, and the little one falls out of being from sheer lack of the vitality which the mother has not been able to give it. She cannot take nearly breath for one, much less for two. A large proportion of the alarming number of miscarriages

in respectable society is directly due to tight dressing. I met a lady a few days since who would have been a beautiful and queenly woman but for this deformity (her waist was less than half the circumference of her shoulders), and I was not at all surprised to learn that a few months before she had come within a few minutes of death from this cause.

“In many cases where the child lives, it drags out a feeble existence, ready to be snatched away by any trifling accident, and the mother piously tries to be ‘resigned to the will of Providence.’ She never dreams that it was through any fault of hers. ‘I am perfectly healthy,’ said such a childless mother to me once, and then she went on with a list of the untoward circumstances that took away one little innocent after another, without a suspicion of the truth that if she had been ‘perfectly healthy’ she would have been able to give each child such vitality that it would have brushed aside these accidents as trifles lighter than air. I do not say that all such troubles arise from tight dressing, but I do say that so far as mothers are concerned, it is far the most prolific source of them.

“And this sort of thing will go on, I suppose, until our women acquaint themselves with practical physiology, so as to get some idea what it means to be ‘perfectly healthy.’ It will be absolutely necessary, too, in order to make them comprehend intelligently the mischief of tight dress, that they should know something about the individuality of the organs within, and the importance of keeping them in their right places.”

The chest may be deformed by compression during infancy, and by many of the injurious practices of mothers and nurses, but the chief agents in distorting this part

of the skeleton are the various kinds of corsets. It is especially from the sixth to the last rib that this pressure is exercised; these, from their greater flexibility, are pressed inward, and all the organs within them—lungs, heart, stomach, liver, etc,—are more or less changed in their position and form; the amount of air introduced into the lungs is lessened, the circulation of the blood through the heart is impeded, the stomach cannot perform properly its functions of digestion, and the liver is displaced downward and presses upon the intestines, laying the foundation for diseases of the chest, consumption, heart-disease, dyspepsia, constipation, and many other ills which shorten or embitter the lives of most of the votaries of fashion.

The chest above the lower ribs expands in its circumference during inhalation. If, when the air in her lungs is expelled, a lady simply fastens her garments snugly around her chest without using any force, it cannot expand when she draws in her breath, into about one inch as much as before her dress was fastened. The air cells continue to act, but receive less air and are diminished in size. When the walls of the cells become accustomed to that state of contraction, there will be no difficulty in making it one inch smaller in the same way, and yet not feeling it seriously. By this way step by step it may be brought to the contracted form we so often see, and yet the lady would be astonished if told that she dressed too tight.

But almost every lady may be made to convict herself of tight dressing in two minute's conversation, thus—say to the next lady you meet, "Madam, do you wear tight dresses?" She will be very sure to say, "No." "Is the dress you have on comfortable?" "Certainly, very com-

fortable." "You feel better in it than in a loose dress, do you?" "Yes, I do, for I feel the want of support in a loose dress. I feel all gone," very much like the rum drinker without his accustomed dram.

The habit grows upon the individual like the drunkard's thirst for whisky, and it soon becomes a necessity, and requires to be steadily increased. The muscles of the body were intended to sustain it erect, but the very moment a lady applies a tight dress it takes off the action of the muscles, and by a well known law of the muscular system, when they cease to be used they grow small and feeble. The longer tight dressing is continued, the more feeble and delicate these natural supports, and the person feels the necessity continually of increasing the tightness of the dress. It is for this reason that no lady ever feels that she dresses too tight unless she suddenly and largely increases the force. She may even destroy life without actually feeling that her dress is tight; in fact, feeling all the time that she dresses just tightly enough to make her feel right, that is to give her proper support.

I verily believe that this dreadful practice has done more within the last century toward the physical deterioration of civilized man than war, pestilence, and famine. The sins of the mother are visited upon the children until the race is extinct. This habit not only carries the mother to a premature grave, but it destroys the unborn. It does seem to me that if the ladies of our land could only see the terrible consequences which follow this practice, not only to themselves, but also to the children with whom they yet may be blessed, that if their hearts are not made of adamant, they would relent and never permit a tight dress to approach their person again.

TIGHT LACING.

It is a trite but correct remark, that, as the human form has been moulded by nature, the best shape is undoubtedly that which she has given it. To endeavor to render it more elegant by artificial means, is to change it; to make it much smaller below, and much larger above, is to destroy its beauty; to keep it cased up in a kind of cuirass, is not only to deform it, but to expose the internal parts to serious injury. Under such compression as is commonly practised by ladies, the development of the bones, which are still tender, does not take place conformably to the intention of nature, because nutrition is necessarily stopped, and they consequently become twisted and deformed. Those who wear these appliances of tight lacing, often complain that they cannot sit upright without them—are sometimes, indeed, compelled to wear them during all the twenty-four hours; a fact which proves to what an extent such articles weaken the muscles of the trunk. The injury does not fall merely on the internal structure of the body, but also on its beauty, and on the temper and feelings with which that beauty is associated. Beauty is in reality but another name for expression of countenance which is the index of sound health, intelligence, good feelings, and peace of mind. All are aware that uneasy feelings, existing habitually in the breast, speedily exhibit their signature on the countenance; and that bitter thoughts, or a bad temper, spoil the human expression of its comeliness and grace.

Ladies who interrupt the circulation of the blood by tight lacing, should reflect that the vital fluid thus repelled from one portion of the system *must* rush to

another. The laced-out stream has to go somewhere, that is clear. Now, where is it most likely to find its level? It is difficult to give a philosophical reason why it should be determined to the nose. But it is quite certain that a pinched waist and a sanguineous suffusion of the nasal organ very often go together. Girls who consider a natural figure a greater deformity than an undue redness of the central feature of the face, will perhaps persist in making themselves wasp-like, despite of the rose-tint in the wrong place; but this is only a small part of the penalty of tight lacing. All the blood diverted from its proper channels does not run to the nose. A good deal of it gravitates toward the hands, which become purplish, and toward the feet, which swell and become tender. Furthermore, over-laced ladies are uniformly dyspeptic, frequently suffer from weak eyes, generally turn sallow by the time they are two-and-twenty, almost always have unpleasantly prominent shoulder-blades, often break down at eight-and-twenty, or thirty, usually look downright old at forty, and but seldom live to be grandmothers. These truths—they *are* truths—should be sufficient, one would think, to make any artificially-constructed woman cut her laces, and permit her blood to circulate freely through its natural conduits.

The corset is not a necessary part of a woman's wardrobe, and alas, when a woman begins to wear corsets she will wear them too small, and will tug at the laces until her breath becomes short and she feels it necessary to abstain from everything like a comfortable meal. We say nothing against a well shaped corset, worn loosely, but there lies the difficulty. A loose corset injures the appearance instead of improving it, and people wear corsets that they may have small waists.

Tight lacing generally spoils the breath, by impeding the digestive organs. We knew a very beautiful woman who lost the affection of a very loving husband through tight lacing, and the dreadful kind of breath it produced in her. The temperate manner in which women live, would preserve the purity of their breath to a very advanced age, were it not for these detestable stays. Many beautiful forms are made decidedly homely by individuals attempting to set at naught the laws of nature.

If a woman, before she goes into this vicious work, will consult her physician, he will tell her that tight lacing compresses the lungs, drives the ribs in on them, induces one form of heart disease, is a frequent cause of uterine complaints and produces curvature of the spine which is the most incurable of all causes of ill health. If she, desiring to "conciliate men's opinion," will ask any man of taste, he will tell her that in men's eyes, a woman with a waist compressed by tight lacing is as ugly as a Chinese woman with compressed feet. Perhaps the single point upon which the educated and the instinctive taste of all men is agreed, is the admiration for roundness, suppleness and that lithe vigor which it is the mission of the stay-maker and his artists to destroy.

Men dread the thought of marrying a woman who is subject to fits of irritable temper, to bad headaches, and other ailments we need not mention, all of which are the direct and inevitable product of the compression of the waist. An unnaturally compressed waist is far more certain of detection than a mass of false hair or a faint dusting of violet powder. The rawest youth who enters a ball-room can pick out the women who have straightened themselves artificially. There is no greater blunder than for the "cultivator" to imagine that a small waist,

which betrays its artificial origin, can be regarded by men with anything less than derision or compassion. Is it wonder, or pity, or contempt that is the predominant feeling when one observes a wasp-like body tapering down to an abnormally small waist, the waist unnaturally round, the dress obviously strained, the whole body apparently balanced so as to prevent the compressed figure from breaking in two halves! A more absurd spectacle it is impossible to conceive; and it is one which suggests some other reflections, not very flattering to the owner of the insect waist.

We presume that girls make fools of themselves in this way in order to convey to others the notion that they are peculiarly sylph-like and graceful. They wish to appear in the eyes of their male admirers as light, ethereal, angelic creatures, who are scarcely subject to the vulgar necessities of hunger. Unfortunately, the impression conveyed is exactly the reverse. The lover cannot look at his mistress' eyes for thinking of her waist, and wondering how she can smile under her tightly clasping bars of cane. In spite of himself he becomes an anatomist. He mentally dissects her. He cannot help thinking of those plates in books of physiology, showing the position of the ribs anterior and posterior to the practice of tight lacing. While he ought to be looking at her face, he is, in imagination, contemplating her lungs. When she sighs, it is not of her affection he thinks; he is considering the action of her diaphragm. It is impossible for the tenderest and most idealistic of lovers to discern the poetry of a mechanical waist.

Men are sensible enough to know that God never made one woman without lungs and heart inside her ribs; and if the place where those organs should be is reduced

to a quarter part the natural size, they are also sensible enough to know that the lungs and heart must be somewhere, and if they are squeezed from their natural position, the next question is, where are they?

Just as though God didn't know what he was about when he cut out the pattern for his Eve! Just as if you knew better than your Maker how many inches your waist ought to measure. When you can manufacture the lungs, heart and other organs about which you draw the corset strings, it will be time enough to make a whalebone basket to hold them, but while God makes the body, do give him a chance to suit Himself about the size of the waist.

In the eyes of true art a wasp-like waist is an abomination, and the most powerful rebuke to the folly of modern fashion is found in the Venus de Medici. Any lady who would like to know what was the standard of a waist in the old classic days of perfect beauty, has only to get an hour's possession of a plaster cast of the Venus and dress it in modern clothes. This experiment has actually been tried, with results that were positively amazing.

Very few ladies know how to appreciate an easy and healthful dress. They think their dresses are loose, when a man or boy put into one as tight, would gasp for want of breath, and feel incapable of putting forth any effort except to break the bands. Ladies are so accustomed to the tight fits of the dressmakers, that they "fall to pieces" when they are relieved of them. They associate the loose dress with the bed or lounge. To be up, they must be stayed up, and to recommend a comfortable dress to them is not to meet a conscious want of theirs. If only the sinner was the sufferer, it would not be so

worth while to make a great ado about it, but the blighting of future innocent lives, which must follow, renders the false habits of our women in the highest degree criminal. We append the following from the Medical Times: "Since women have loosened their corsets a little, the annual mortality has decreased $18\frac{1}{2}$ per cent. Since women have loaded their heads with enormous chignons, cerebral fevers have increased $12\frac{3}{4}$ per cent."

A young lady of our acquaintance called on one of our physicians the other day to prescribe for rush of blood to the head. "I have been doctoring myself," said the languid fair one, with a smile, to the kind M. D., while he was feeling her pulse. "Why, I have taken Brandreth's Pills, Parr's Pills, Straugburg's Pills, Sands' Sarsaparilla, Jayne's Expectorant, used Sherman's Lozenges, and Plaster and"— "My heavens! madam," interrupted the astonished doctor, "all those do your complaint no good!" "No! Then what shall I take?" pettishly inquired the patient. "Take," exclaimed the doctor, eyeing her from head to foot, "take!" exclaimed he, after a moment's reflection, "why, take off your corsets!"

"Don't you think tight lacing is bad for the consumption, doctor?" asked a young lady of her physician. "Not at all," said the doctor, "it is just what it feeds on."

Unless you like the heart disease and consumption, wear no tight clothing. The measures for your dresses should be taken over fully inflated lungs, and you should never wear corsets which do not measure as many inches around as you do.

MOTHERS AND FASHION.

Mothers are accountable, in a great degree, for the health and lives of their children, and should become intelligent in regard to laws upon which life and health depend. Their work does not end here. They should carefully educate their children upon this subject, that they may, by obedience to nature's laws, avoid disease, and secure health and happiness. It is not necessary that all mothers should teach their children all the details of physiology and anatomy. But they should avail themselves of all the means within their reach to give their children instruction relative to the simple principle of hygiene.

It is well that physiology is introduced into the common schools as a branch of education. All children should study it. It should be regarded as the basis of all educational effort. And then parents should see to it that practical hygiene be added. This will make their knowledge of physiology of practical benefit. Parents should teach their children by example, that health is to be regarded as the chiefest earthly blessing. They cannot do this while the love of money and of display is made of greater consequence than the health of their children.

Mental and moral power is dependent upon the physical health. Children should be taught that all pleasures and indulgences are to be sacrificed which will interfere with health. If the children are taught self-denial and self-control, they will be far happier than if allowed to indulge their desires for pleasure and extravagance in dress.

The great burden of life with very many is, What shall I eat? What shall I drink? And wherewithal shall I be

clothed? Many mothers indulge in pride, and in many things which are hurtful to the health of the body, in order to be in fashion. What deplorable lessons are they giving their children in this respect. They do not, by precept and example, educate their children to practice self-denial as a sacred duty, in order to possess health, serene tempers, goodness and true beauty. Good health, sound minds, and pure hearts, are not made of the first importance in households.

Many parents do not educate their children for usefulness and duty. They are indulged and petted, until self-denial to them becomes almost an impossibility. They are not taught that to make a success of Christian life, the development of sound minds in sound bodies is of the greatest importance. The dear children should be taught to flee every taint of sin. In order to do this, they must separate from the hurtful fashions of the world.

It is a sad fact that many, even professed Christians, make their pleasures, their amusements, the gratification of pride in dress, the gratification of appetite, almost everything; while the cross of Jesus Christ, and purity of heart and life, are left out of the question. God has claims upon them, but they do not, by their life, show that they have a sense of their duty to him. They acknowledge the claims of the world in their obedience to fashion. They devote time, service and money to its friendship, and, in so doing, prove themselves to be not the true friends of God. He demands of his people the first place in their hearts. He requires their best and holiest affections. The Christian religion invites, urges, and claims self-denial, and the bearing of the cross for Christ's sake. And the soul's interest should come first.

The world may clamor for our time and affections, fashion may invite our patronage; but the words of the apostle should be enough to lead Christian mothers from the indulgence of pride in dress and demoralizing amusements. "Know ye not that the friendship of the world is enmity with God?" "Whosoever, therefore, will be a friend of the world, is the enemy of God."

Christian mothers should take their position on the platform of truth and righteousness; and when urged to unite with the world in patronizing fashions which are health-destroying and demoralizing, they should answer, We are doing a great work, and cannot be diverted from it. We are settling the question of our everlasting destiny. We are seeking to develop in our children, sound and worthy and beautiful characters, that they may bless the world with their influence, and have immortal beauty and glory in the world to come that will never fade. If children had such an example from their parents, it would have a saving influence upon their lives.

But it is a lamentable fact, that many professed Christian women, who are mothers, take the lead in patronizing the fashions, and those who make no pretensions to Christianity follow in the footsteps of professed Christians. Some who are in humble circumstances in life, in their efforts to keep pace with fashion, that they may retain their position in fashionable society, endure privation, and work far beyond their strength, that they may dress equal to the example given them by their more wealthy Christian sisters. Unless they can dress somewhat to compare with their more wealthy sisters, they have no desire to attend church, where there is such a display of costly adorning. The contrast is humiliating, say they, and they can only think of their humble dress.

The temptation is so strong before some to come up to the standard of fashion that they are sometimes led into dishonesty and theft to gain their desired object. Others sell their virtue, that they may have the means to decorate themselves for display. They see this is the great aim of life with many who profess to be righteous. Professed Christians, whose example thus proves a stumbling-block to their weak sisters, will have a fearful account to meet in the day of final reckoning. They have, by their example, opened a door of temptation to the inexperienced, who are charmed with the respect paid to those dressed in fashionable style, and they become so infatuated that they at last sold honor and virtue, woman's greatest adornments, and sacrificed health and happiness for artificial decorations for display.

At a fashionable party in Fifth Avenue, New York, a beautiful young woman turned sharply upon an elderly dowager who was prosing about the Magdalens, and the hopelessness of doing anything for these "lost women," with the assertion: "I know a class more hopelessly lost than they. We fashionables who murder time and squander money, and lead women to become Magdalens that they may dress like us, why does nobody send missionaries to us?"

The apostle presents the inward adorning, in contrast with the outward, and tells us what the great God values. The outward is corruptible. But the meek and quiet spirit, the development of a beautifully symmetrical character will never decay. It is an adornment which is not perishable. In the sight of the Creator of everything that is valuable, lovely and beautiful, it is declared to be of great price. "Whose adorning, let it not be that outward adorning of plaiting the hair, and of wearing

of gold, or of putting on of apparel. But let it be the hidden man of the heart, in that which is not corruptible, even the ornament of a meek and quiet spirit, which is in the sight of God of great price. For after this manner, in the old time, the holy women also, who trusted in God, adorned themselves, being in subjection to their own husbands." 1 Pet. 3 : 3-5.

It is of the greatest importance that we, as Christian mothers, show, by precept and example, that we are cultivating that which the Monarch of the universe estimates of great value. In doing this, what an influence for good we can have upon our children ; and how important we can make our lessons of instruction, that purity and holiness should be the great aim and object of their lives.

Through dress the mind may be read, as through the delicate tissues of the lettered page. A modest woman will dress modestly ; a really refined and intellectual woman will bear the marks of careful selection and faultless taste.

UNDERCLOTHES.

Many persons lose their health every year by an injudicious change of clothing. If clothing is to be dismissed, it should be done in the morning when first dressing. Additional clothing may be safely put on at any time. In the Northern States the under-garments should not be changed for those less heavy sooner than the middle of May, for even in June a fire is very comfortable sometimes in a New York parlor. Much disease would be swept from existence if the human body was kept comfortably warm all the time. The discomfort of cold feet

or of a chilly room many have experienced to their sorrow; they make the mind peevish and fretful, while they expose the body to colds and inflammations, which often destroy it in less than a week. Colds, coughs, lung fevers, &c., that are of such frequent occurrence during the spring months, are much more often the results of irrational and unphysiological habits of dress, than any peculiar unhealthfulness of the season. Almost every one in this country, men, women and children, wear flannel, usually next the skin, through the winter. Some, however, object to its use altogether in consequence of the great liability to take cold when it is taken off in the spring.

Flannel may be worn through the winter and its use discontinued when the proper time comes, if done judiciously, without the least possible danger to the health. If worn next to the body and a change is desired, it should first be removed, the body sponged in cool water, rubbed dry, cotton underclothes put on, and the flannels over them. They may be worn thus until the weather is quite warm enough to leave off the flannel altogether, when it may be taken off, and a light knit cotton suit substituted in its place. Finally, when it is necessary to leave that off also, a pair of knit cotton sleeves drawn on over the arms of cool days, or when a thick dress is changed for a thinner one, will be found very serviceable in warding off colds. An old pair of cotton stocking legs tacked to the underwaist or chemise sleeves answers a very good purpose. It is a fact few seem to recognise, that the arms and legs require more clothing than any other part of the body. To remove three or four thicknesses of clothing from over the chest or trunk will disturb the circulation less than to remove one from the

arms or lower limbs. A recognition of this fact would contribute largely to the health of women and children.

The cool mornings and evenings which generally follow the first of September, tempt many to make too sudden a change in their clothing. The body should be kept warm at all times; but the changing of clothing in the fall should be done gradually, so that when cold weather sets in, a person will not find that his or her body is already covered so much that it is almost impossible to put on anything more. It is strange how some people neglect their health. How little they think of their clothing, and of the cleanliness of their bodies; how little they think of their diet; how little they think of keeping regular hours; and these are often the people who are always complaining of their poor health.

Many a fatal case of dysentery is caused by the want of a woollen undershirt, or an extra blanket at night. The sudden changes of temperature which occur are very trying to the constitution. People with weak lungs quickly feel the effects of them. Frequently the thermometer falls many degrees within a few hours. Not only the feeble, but robust and strong persons suffer from such great variations of temperature. When the weather grows cold rapidly, the pores of the skin are suddenly closed, and the result is frequently a bad cold, which may hold on all winter, and terminate in consumption or a fatal attack of dysentery, or that dreadful disease, typhoid fever. There are many ready-made coffins—little, short, tiny coffins—which are going to be filled up by children—some of them as sweet and beautiful as anybody's, as your own; and just think of it, these children might be left in their bright homes, if only warm

shoes and stockings which keep little feet dry, and warm clothes and woolen blankets were more plenty.

Flannel, though an indispensable article of clothing during the day, may be thrown off, not only with safety but advantage at night, when the temperature can be preserved so uniformly that there is no danger of a sudden check from cold to the transpiration of the skin. If flannel is required by the weak and chilly for comfort during the night, it should never be the same as that worn in the day. Dr. Sturt says: "Flannel should always be worn next the skin in the day time, both in winter and summer. It does not absorb moisture like linen, which becomes wet, and increases the liability to cold. It should be removed on going to bed, for the sake of cleanliness, the skin being usually covered with a greasy secretion, derived from the solids of the perspiration. This is not absorbed by flannel; but by wearing a calico night-shirt it is entirely removed. For the sake of warmth, a loose flannel jacket should be worn over it. I wish particularly to recommend this plan for general adoption. I have found it very serviceable in my own family, especially with children whose restless movements during sleep generally leave the upper part of the body exposed. The rheumatic pains often felt in the shoulders of adults, are due in a great measure to this exposure. I have never known any one discontinue it who has given it a trial; it is not intended to supersede the use of a sponging bath, but as an auxillary to it. The use of flannel for ladies' clothing instead of a portion of calico or linen, would be advantageous, and for warmth might well supersede stays; warmth being one of the excuses for wearing them."

Flannel may be worn in summer and winter, during

the day, but should be taken off at night. In summer it allows the perspiration to pass off without condensing upon the skin, and prevents the evil effects of the rapid changes of temperature, to which we are liable when out of doors. In winter, as a non-conductor of heat, it is a protection against cold. At night the flannel jacket or Jersey should be exposed to a free current of air and allowed thoroughly to dry; it should never be put in a heap of clothes by the bedside. There are scarcely any of the bad effects of sudden changes of weather felt by those who wear flannel garments, and mothers especially should endeavor to secure such for their little people, in preference to all those showy outside trimmings which fashion commends. The value of flannel next to the skin cannot be overrated. It is invaluable to persons of both sexes and all ages, in all countries, in all climates, at every season of the year, for the sick and the well. It should not be changed from thick to thin before the settled hot weather of the Summer; which, in our Northern States, is not much before the middle of June, and often not before the first of July. And the flannels for the Summer must not be three-quarters cotton, but they must be all woolen, if you would have the best protection. In the British army and navy they make the wearing of flannel a point of discipline. During the hot season the ship's doctor makes a daily examination of the men at unexpected hours, to make sure that they have not left off their flannels.

Heavy English canton flannel, unbleached, is a very good protection against the wind; all-wool Shaker flannel ought to answer the purpose; but in case this fails, procure a suit of perforated deer skin, through which, though the perspiration may pass off, the air cannot pen-

etrate. This is worn only during the day, and replaced with flannel at night. Use the deer skin only in cases of extreme exposure, as after having worn it for a time it will be difficult to leave it off, and almost as difficult to cleanse it when soiled.

The *color* of the garment next the skin must not be overlooked. There is a time-honored notion, familiar to every one, that *red* flannel has some peculiar virtue about it. The old women recommend it for "rhumatiz" and "stiff joints." However well-founded this venerable prepossession may have been in the good old times when the dye-stuffs were derived from vegetable extracts, we regret that we must throw discredit on it at present. Many of the reds now employed in the arts are obtained from coal-oil and from the salts of mercury, both of which contain acrid and poisonous principles. Within a year or two a number of cases have been reported, where painful cutaneous diseases arose from wearing articles thus dyed. Any decided color should be rejected. Our recommendation is to avoid all dyed garments whatever next the skin, and if we *do* yield to the charms of delicate flesh tints in gloves and stockings, it is with some disturbance of our professional conscience. Skin gloves, be it remembered, dyed on the outer side, do not come within the ban.

White underclothing is not only more healthful, but warmer on account of its not radiating the heat of the body as some other colors do.

Dr. Hagar says that numerous cases have occurred where colored woolen garments, worn next the skin, have produced a peculiar kind of poisoning. Violet-gray woolen stockings, after having been worn less than six hours, caused redness of the skin, and permanent

pustules, in connection with feverish symptoms, and constipation. The same results followed after the stockings had been treated with boiling water. Similar symptoms were produced by gray woolen shirts, next the skin, and by the red binding of others. He considers the aniline colors as a rule poisonous in their action upon the skin, as has been established in regard to coralline, in spite of all denials; the exceptional character of a few in this respect being difficult to establish. He recommends, therefore, that woolen garments colored with aniline colors should not be worn next the skin, and suggests as a test for these colors, that a portion of the wool be heated to boiling, in a test-tube, with 90 per cent. alcohol, and if the latter acquired a red, violet, or violet-blue tint the coloring matter is suspicious.

Dr. Holbrook tells everybody to wear white undergarments, as people sometimes die from the effect of the dye in the colored articles. A man must be careful how he clothes his person or he may close his life.

DRESS OF OUR EXTREMITIES.

During the damp and cold season deficient dress of the feet and legs is a fruitful source of disease. The head, throat, and liver are perhaps the most frequent sufferers. The legs and feet are far from the central part of the body. They are not in great mass, like the trunk, but extended and enveloped by the atmosphere. Besides, they are near the damp, cold earth. For these and other reasons, they require extra covering. If we would secure the highest physiological conditions, we must give our extremities more dress than the body. We men

wear upon our legs, in the coldest season, but two thicknesses of cloth. The body has at least six. Women put on them four thicknesses under the shawl, which, with its various doublings, furnishes several more—then over all thick, padded furs; while their legs have one thickness of cotton under a balloon. They constantly come to me about their headache, palpitation of the heart, and congestion of the liver. Yesterday, one said to me, "All my blood is in my head and chest. My head goes bumpety-bump, my heart goes bumpety-bump." I asked, "How is your feet?" "Chunks of ice," she replied. I said to her, "If you so dress your legs and feet that the blood can't get down into them, where can it go? It can't go out visiting. It must stay in the system somewhere. Of course, the chest and head must have an excessive quantity. So they go 'bumpety-bump,' and so they must go, until you dress your legs and feet in such a way that they shall get their share of blood. In the coldest season of the year, I leave Boston for a bit of a tour before the lyceums—going as far as Philadelphia, and riding much in the night without an overcoat; but I give my legs two or three times their usual dress. During the coldest weather, men may wear in addition to their usual drawers, a pair of chamois skin drawers with great advantage. When we ride in a sleigh, or in the cars, where do we suffer? In our legs, of course. Give me warm legs and feet, and I'll hardly thank you for an overcoat. "My dear madame, have you a headache, a sore throat, palpitation of the heart, congestion of the liver, or indigestion? Wear one, two or three pairs of warm woolen drawers, two pairs of warm woolen stockings, and thick warm shoes, with more or less reduction in the amount of dress about your body, and you will obtain the same relief per-

manently that you derive temporarily from a warm foot-bath." A thin layer of India-rubber cemented upon the boot-sole will do much to keep the bottom of our feet dry and warm.

India rubber overshoes should always be removed when one enters a house with the purpose of staying long. They rot leather and injure the feet.

The French chemist, Tardieu, has made some interesting experiments with red stockings imported from England. After extracting the coloring matter, he introduced a certain quantity of it beneath the skin of a dog, which died in twelve hours. A rabbit similarly treated expired in eight hours, and a frog in four. Opening the animals, M. Tardieu re-extracted the red coloring matter from the bodies, and with it dyed a skein of silk. In his report, communicated to the Academie des Sciences, M. Tardieu condemns the use of "coralline" (the mineral poison to which the fatal stockings owe their hue) as an article of general commerce; and recommends that the importation of red stockings from England be absolutely prohibited.

Cotton socks next the skin, and woollen socks outside of them, are represented as sure to cure cold feet. At night the cotton socks will be quite dry, and the outside ones damp.

Every woman is familiar with the vivid red mark on the skin left by the garter, after being worn in the usual manner even for a short time. Now garters never should be worn so tight. The stockings should be long enough to come so far up on the limb as to be easily secured, without excessive pressure; or the "stocking-supporter," now being adopted pretty extensively, should be used. The worst result produced by tight ligatures is the affec-

tion called "varicose veins" in which the veins enlarge, assume a knotted appearance like a coiled snake, and sometimes burst, disfiguring the limb for life. This is often produced by the obstruction to the free passage of the blood through the veins, from the tight ligature around the limb.

No French woman, no English woman of cultivation, nowadays wears her garters below the knee. It is ruinous to the shape of the calf. More than this, it has serious consequences of another kind. The principal vein of the leg, (*vena saphena bavis*) runs just beneath the skin until it nearly reaches the knee, when it sinks beneath the muscles. Now if this is constricted at its largest part by a tight garter, the blood is checked in its return to the heart, the feet are easily chilled, and more liable to disease, the other veins of the legs are swollen into hard, blue knots, become varicose, as is called, and often break, forming obstinate ulcers. This is a picture which physicians see nearly every day. With the garter fastened above the knee all this pain and deformity are avoided.

HOW TO DRESS THE FEET.

When the celebrated physician, Abernethy, died, report said, that beside a will of some interest to his heirs, in a pecuniary point of view, there was found among his effects a sealed envelope, said to contain the secret of his great success in the healing art, and also a rule of living, the following of which will insure longevity. A large price was paid for the sealed envelope. It was found to contain only these words: "To insure continued health

and a ripe old age, keep the head cool, the system open, and the feet warm."

Dry feet are warm feet, generally, if the system is healthy. To keep the system healthy, the circulation must be good. The circulation is not good without exercise—and exercise can only be valuable when gotten up by walking. Riding in a carriage is not exercise at all; it is merely inhaling the air. This is very well as far as it goes, but the lungs are not in full play without the individual is walking. Horseback exercise is very good, and is an improvement on carriage riding, but it is not the kind of health-creating play of the muscles nature demands. It is action—action of the entire body—and walking only will procure it. Now, the ladies of Europe—particularly those of England—understand this thing. They walk miles per day, and if any of our pale beauties desire to know how the English keep up their fine color, clear complexion and superb busts, we tell them that it is out-door exercise—walking in the open air, filling the lungs with pure oxygen by rapid movement on a sharp October day, when the sun shines brightly, and the clear blue sky is above. This is the secret of the rich blood of the English women, and their almost universally fine looks and matronly beauty at fifty, when at that age our American women are pale, sallow and wrinkled.

To enjoy a walk, thick soles are needed. Stout, well-fitting calf-skin high gaiters, neatly laced, will always set off a pretty foot and improve a homely one. To guard that sensitive portion of the human frame (for the sole of the foot is keenly sensitive to the changes from heat to cold, or dryness to dampness) the boot sole should be thick, and made as well as human ingenuity can do it.

Then, even in moist weather, or in a rain-storm, the foot can be protected; that insured, all is well with the body.

How slow it is for some people to learn wisdom. We often see men, as well as women, walking carefully along, placing each foot upon the ground, cautiously as if they were afraid of alarming some sleeper, or it might be imagined that they were slipping away from justice. We have had our attention called to this more than once, and from various expressions and opinions we are disposed to believe that it is owing to the thin soles on their shoes. Walking upon hard ground, or stepping on pebbles, the soles shape themselves to such unevenness, and the foot is compelled to take its chances or come out of the shoe. Direct injury results to the feet, such as bunions, corns, etc., to say nothing about the injury done to the whole system from wet and cold. With thick soles, the foot may be set down hard, or upon stones, and the shape of the shoe will be the same; there is no danger of corns or bunions on this account, and we are sure to avoid sickness from wet or cold. A thick sole is indispensable.

The disadvantage of a thin sole is that it produces callosities at the bottom of the foot, at the parts corresponding to the bones where they are attached to the nails. The hard part of the foot is produced by the chafing of the skin, which at the sole of the foot is very thin. This thin skin has to resist every pressure of the foot between it and the sole of the boot, which is always hard, and the bones every time the foot touches the ground. Hence, it hardens at every one of the openings beneath the toes. It follows that one has more fatigue or inconvenience from pressure with the same amount of walking when the sole is too thin. For this reason we require for summer boots a thick sole. For winter boots

we require that the sole should be very thick, a thick double sole or clump will be found the best. As all the parts of the sole are made of leather, not liable to ruck or hollow under pressure, the insoles should not be of leather entirely impervious to water, or rather perspiration, for if they are, the dampness of the foot will feel cold, and by this remaining for days, the results will be chilblains, swellings of the throat, glands, and other maladies.

Very few girls walk in a firm, strong way. Notice one. You can see that she is balancing upon a narrow sole. There is an unsteadiness, a sidewise vibration. Besides, as she has not breadth of toe enough, she can not push her body forward in that elastic way which we all so much admire. Again, the pressure of the upper leather checks the circulation in the foot and makes it cold. If you check the circulation in any part it becomes cold. The tight shoes, with an elastic worn about the leg just below the knee, so check the circulation in the foot, that the great majority of girls have cold feet. It would, indeed, be rare to find one with warm feet like a boy. Besides broad soles are much handsomer than narrow ones. They make the foot look smaller. If one puts his foot into a shoe too short, and too narrow, and the toes and the sides of the foot press out all round over the sole, it makes the foot look big; but if the soles be large enough to let the foot rest in its natural relations, it looks much smaller. Another advantage may be mentioned for the benefit of those who study economy. Such will not only keep in shape, but they will last two or three times as long as those with narrow soles, and if of good stock, will almost wear out, while the soles remain square and even. I have spoken of the advantage of a

greatly improved circulation, which would result from the introduction of the wide soles. I may add that the change which would at once appear in the manner of walking, would strike every beholder.

The truth may be uttered boldly, that no lady can be beautiful with cold or too tightly dressed feet. Cold feet wither the roses of the cheeks, give a gaunt, hollow, spiritless expression to the eyes, and a pinched, leaden hue to the skin that will peer out plainly beneath the cosmetrical mask. A woman must be comfortable to look happy, and she must look happy to merit indorsement as a beauty. The shoe should be made for the foot, not the foot made to accommodate itself to the fixed proportions of "store" shoes. Some few feet may be of the "ready-made" class; a far larger number possess an individuality of form that exacts its own peculiar last and measure. Be sure you have a reliable, honest knight of St. Crispin who takes a pride in the creation of his art, and, it may be, exalts it in his own estimation beyond its apparent claims to respect. A shoemaker should take the same sort of personal interest in every pair of shoes that goes out of his shop, that an artist feels when the finished achievements of his brain and brush issue from the seclusion of his studio.

In the shape of a boot lies the secret of success; a large shoe, if well shaped, offers a more alluring charm than an ill-proportioned one, even if it boasts Cinderella-like diminutiveness. Added to this, a shoe that fits—by which I mean, one modeled after the foot, not into which the foot may be stored—can be worn with comfort, even if meriting the epithet of "tight." It will be found that too loose a shoe, especially to a thin foot, is decidedly more replete with discomfort and even injury

than one fitting snugly. It allows constant friction, and is prolific of bunions and hard corns, besides soon becoming shabby and treading out of shape.

The London Medical Press, in an article on "Tight Boots and Weak Eyes," says: "There is something, after all, in the notion and belief of our old lady friends that tight boots produce weak eyes. Since the new-fashioned boot made for and worn by ladies has come into use, we have been consulted in various instances for a weakness of vision and a stiffness about the ocular apparatus, which we found at first difficulty in accounting for, since we were unable to detect any abnormal condition of the eye to cause this disordered vision, or to trace any constitutional disturbance likely to provoke functional phenomena. A mother, wise in her generation, given to bestowing roses to Harpocrates, the God of Silence, asked us if the tight boots worn by her daughter might not produce the distressing symptoms of asthenopia complained of. To this we assented, and upon the tight boots being dispensed with, discovered that the cause of the mischief must have been removed, for the injurious effect upon the eyes ceased—*sublatur causa, tollitur effectus*. However disposed our fashionable ladies may be to wear the high built, conical-shaped heeled boot of the period, with narrow toes and light top soles, which throws the foot so prominently forward, and tends to compress it in a space which the boot-closer narrowly limits; and, however anxious they may be to imitate Lady Hester Stanhope, whose foot, it is stated, betrayed a royal race, for water flowed beneath the instep; this we tell them, in the hour of splendor and fashion, that the localized pain suffered from compression of the foot, and the consequent production of corns, and

bunions, and distorted toes, so patiently endured in the self-sacrifice to outward show, are nothing compared to other symptoms which undue, and persistent pressure provokes, and which may be readily recognized in the unsteady, bashful look about the eyes, the perpetual winking of the lids, and the contracted brow, so pathognomonic of approaching weakness of sight—the asthenopia of the oculist; whilst we must remind them Propertius has written *oculi sunt in amore duces*, and we now teach them that, at the expense of a neat foot, they must not injure their eyesight.”

If you want a shoe to fit you comfortably, next time you are measured for a pair stand upon a piece of paper, and get the shoemaker to trace with a pencil the outline of each foot, we say, because two feet are never alike in size and shape though they belong to the same person. They are more than right and left—they are unlike. Don't suppose that you can be measured for a pair by the most careful measurement of one. Insist on having the outlines as well as the girth and length of each foot taken, and then, if the shoemaker is an honest man, he will send home a pair of boots which, with their turned-in-toes, will look unpromising when off, but when once on, will prove not only the most becoming, but the most comfortable you ever wore.

Shoes are better for ordinary, every-day use, as they allow the ready escape of toe odors, while they strengthen the ankles, accustoming them to depend on themselves. A very slight accident is sufficient to cause a sprained ankle to an habitual boot-wearer. Besides, a shoe compresses less, and hence admits of a more vigorous circulation of blood. But wear boots when you ride or travel. Give direction, also, to have no Cork or India Rubber

about the shoes, but to place between the layers of the soles, from out to out, a piece of stout hemp or tow linen which has been dipped in melted pitch. This is absolutely impervious to water—does not absorb a particle—while we know that cork does, and after a while becomes ‘soggy’ and damp for weeks.

The fashion of wearing short-and-high-heeled shoes is a very injurious one to the shape and use of the feet. A short heel does not support the arch of the foot, but allows it to sink, stretching and weakening the ligaments that hold the bones of the arch together, and making the person flat footed. The purpose of the arch of the foot is to give elasticity and spring to the feet, and prevent sudden shocks being transmitted too abruptly to the body and brain. A person with a high-arched foot steps lighter, easier and more gracefully, can walk with much less fatigue, and run and jump much better than a flat-footed person. Thousands of people lose their natural ease and grace of motion, and become stiff and awkward walkers, simply from wearing short-heeled shoes, and thereby losing their natural elasticity of step. The matter is made still worse by having the heels very high as well as short. Another effect of flattening the arch of the foot is to increase its length, and the foot is often lengthened in this way to the extent of half to three-quarters of an inch. Short-and-high-heeled shoes also readily permit the easy turning over of the ankle, and many a strained and weakened ankle is the result of them. Ladies are the greatest sufferers from this foolish fashion, but men suffer also to some extent. The heel is usually made at least twice as high as it should be, and oftentimes not more than half as long. They can in all cases be safely made from one-half to three-quarters of an inch longer than they are.

The Lancet, in an article on this subject, remarks that "the custom of wearing high boot-heels, and those, too, so much smaller than the actual heel of the wearer, as to afford no solid support, but only a balancing point, is a source of much mischief, because it throws the center of gravity of the body so far forward that a free and gracefully erect carriage is impossible, and there being no firm support to the heel, ladies are very apt to twist the ankle suddenly by overbalancing themselves; and then the effect of driving the foot constantly forward into the toe of the boot is to produce a very ugly and painful distortion of the great toe joint." When the heel is raised, as is the prevalent custom, the bones of the thigh, pelvis and leg, as well as the foot, are thrown into abnormal positions; and, while the bones maintain their plasticity, the effect of such unnatural tension is sure to be perpetuated in the shape of crooked shins, bandy legs, elephantine toe-joints, and a cramped, ungraceful gait. Says a fashion paper: "High-heeled and narrow-toed boots destroy the shape of the foot, distort the toes, destroy the contour of the ankle, and spoil the walk."

Dr. Wm. H. Pancoast remarked, after performing a painful operation on an interesting little girl, whose feet had been ruined by wearing wrongly constructed shoes, "this is the beginning of a large harvest of such cases." In many cases severe sprains of the ankles are suffered. But these are not the worst fruits of the high-heel torture. The toes are forced against the fore part of the boot, and soon begin to assume unnatural positions. In many cases they are actually dislocated. In others the great toe passes under the foot, the tendons harden in that position, and lameness is contracted, for which there is no cure but the knife. When the injury does not take

this form it assumes other aspects almost as horrible, and it is high time that society should set its face as a flint against any continuation of the absurd and unnatural custom. It is causing many weak and sprained ankles for which there is no cure. An ankle once sprained is ever after liable to be injured by a very slight cause. No lady who values her comfort in life and her limbs upon which she depends for locomotion, will wear high heels, tapered off as is now the fashion.

DRESS OF THROAT, HEAD AND HANDS.

The common way of protecting the throat is to bundle and wrap it up closely, thus overheating and rendering it tender and sensitive, and more liable to colds and inflammation than before. This practice is all wrong, and results in much evil. Especially is this the case with children, and when in addition to the muffling of the throat the extremities are insufficiently clad, as is often the case, the best possible conditions are presented for the production of sore throats, coughs, croup and all sorts of throat and lung affections. It is wrong to exclude cold air from the neck, and if it is overheated a portion of the time, when it is exposed, some form of disagreement of the throat will be apt to occur. The rule in regard to clothing the neck should be to keep it as cool as comfort will allow. In doing so you will suffer much less from throat ailments than if you are always fearful of having a little cold air come in contact with the neck. Any one who has been accustomed to have his throat muffled should be careful to leave off gradually, and not all at once.

Those who are the most careful in keeping on mufflers and neck-ties to avoid exposure to the air, defeat the end they are trying to gain, especially if in usual health. Now, it is quite impossible to entirely exclude cool air from the throat, and by trying to do so that part of the body becomes tender and sensitive, and by exercise moist with perspiration, being in the right condition to take cold by every new change of weather. Mufflers are comfortable, but should be worn loosely around the neck. Furs are a wise improvement over close-fitting elastic woolen mufflers. We are strongly of the opinion that sweating the neck should be wholly avoided in cool weather.

Most people wear their collars and neck-ties too tight. They swaddle their neck with material enough to load down a camel; bind it so tight they can hardly breathe, and then complain of headaches, weariness, and general malaise, and wonder what it is that causes it. We sometimes wonder why some of them don't choke to death. They do choke to death literally, for men drop down every day with heart disease, apoplexy, bursting of blood vessels, &c., that are superinduced by no other means in the world than this thoughtless habit of wearing such tight and unyielding dressing about the neck. It is an injurious habit, and a man had just about as well wear a hangman's rope and done with it, as to get into the practice. The former kills instantly; the latter is *just as certain*, yet so gradual in its effects as to cause no immediate alarm until the fatal blow is given. Those who value their health should guard against all habits of the kind.

The Boston Journal of Chemistry says that "absurd as the high hat is, it does keep the head more comfort-

able, it does maintain a more equable temperature, and it does feel better than any other form of head covering."

Green veils are very hurtful, and the Bistoury, in speaking of them, says: "We frequently see little children in their carriages upon the street, with green veils tied over their heads and faces. A child will always take the folds of a veil in its mouth, when it can, and will often extract the green coloring matter with its lips. Children, and even grown people, have sore mouths and faces from this cause, which are frequently difficult to heal. The coloring matter in the green veil contains arsenic, which, when placed in contact with a delicate surface like the lips, or a pimple upon the face, will cause an ulcer that is troublesome to heal. Ladies sometimes have sore hands from wearing green gloves, when they innocently attribute the difficulty to another cause, thinking their hands are chapped. Green colored wearing apparel of any character should never be worn next the skin."

An English medical journal publishes a warning against the wearing of green kid gloves. It has been observed in several cases that the hands of those wearing gloves of this color soon become covered with an eruption, which physicians find hard to cure, as the poison seems to enter the system. Upon analysis, it has been found that the green used for dyeing the kid contains arsenic. Though not all the green kid gloves in the market are so dyed, it is nevertheless safer to wear others of a less bright and less dangerous color. .

Dr. Fortin, of Paris, remarks that the use of gloves made from the skins of animals is attended by notable dangers. They were introduced, in their finer qualities, into France by the Medici family, and, since then, the

hands of the higher classes have lost much of their purity and beauty of contour. It is not difficult to comprehend that the continuous and violent compression of the hand must disturb its organism, and deteriorate the exquisite natural delicacy of its sense of touch. But all the difficulty does not cease at that point, by any means. Anatomists can tell us that an interchange of the two kinds of blood, the venous and the arterial, takes place at the ends of the fingers as well as elsewhere, and that anything which interrupts the process produces a reaction toward the heart,—the hollow muscle that is the projecting and propelling organ of circulation.

An organic predisposition co-operating with this disorder may develop certain diseases of the heart, or aggravate those that previously existed. There are, also, certain nervous operations at the extremities which communicate sensations to the brain, and any obstacle opposed to this action of nature may originate a variety of symptoms ranging from mere weakness to a regular nervous crisis.

Tight gloves of kid or other skin, by their adhesion to the surface, frequently produce a sort of abscess or ulcer, which appears under the nails. In such cases, puncturing the flesh, or even leaving it to the process of nature, will lead to the loss of the nails, which cannot, afterward, be easily renewed. To young ladies, such an accident is very trying. But there is a precaution that may be taken against the occurrence of this deformity. It consists simply in scraping the nail with the blade of a sharp knife rounded to the end. The scraping must be done near to the seat of the abscess or inflammation. The pus once being removed, the small orifice produced by this process will soon disappear, without leaving any

trace. But, on the general principle, in order to reconcile those two sworn enemies—health and fashion—all prolonged pressure at the extremities must be avoided, especially in the case of children, and of young girls who have not attained their complete growth and development.

CHILDREN'S CLOTHING.

The bleak winds of November will warn many a mother that croups, coughs, colds, congestions, are lurking to attack and destroy her tender child. To guard against so fearful a stroke she may think best to keep it protected within the four walls of the house from any such danger. But let her pause a moment and consider if there is not a better mode of insuring the life and happiness of her offspring than keeping it indoors. Suppose, incased in flannel from neck to toe, with warm mittens, fleecy stockings, and abundant wrappings, the children tempt the wintry blast, what rosy cheeks, what bright eyes, what bounding elastic spirits they bring back with them; with what gleaming delight they hail the advent of snow, what shouts of merry laughter greet the time of snowballing and sleds. How much better this than the pale delicate faces, fragile forms, timid, shrinking manners and precocious attainments of human house plants, who never feel the invigorating breath of nature in her stern and stimulating moods. Be sure that dampness cannot touch the feet, that a woollen envelope encircles the entire body next the skin, and that enough outside covering is around the child, and let him run as much as he will. Little kittens, little pigs and calves

and lambs take the air, and are the better for it, and so are little children.

Nature covers all the more delicate animals with an increase of clothing and protective material; among the lower animals this is everywhere illustrated; also at the most inclement seasons, the covering is increased; not merely that class of unfeeling garments which the beast has, hair and wool, but the layer of fat which underlies the skin, and which is as truly clothing and protection as the other, is increased. This is all true of the human family. Women, children and aged persons, being less strong and rugged, have, as a rule, much more fat on their bodies than the rest of mankind. The infant, especially, is provided in this regard, a thick layer of adipose matter overlying the whole body. If infants were as lean as men and women often are, if their limbs and faces were as truly bone, muscle and skin as is the case with many adults, they would be sorry sights indeed. The fact of this clothing is proof of the delicate nature of the child, if we had no other, which we have in abundance.

The infant is exceedingly susceptible to every impression of air, moisture, temperature, and the like, and is affected by them in a far greater degree than are adults. This adipose tissue is a wise provision of nature to ward off some of the thrusts it gets from vicissitudes in these directions. It is not a proof that the child needs no other clothing, but should rather make us more wary and careful that it be clothed well and thoroughly. The kind of cloth used for infants' garments, and for all children, is, as a general rule, good. Warm woollen flannels are to be commended, and these we find covering the forms of most infants. Outside of these, quite generally, some

cotton stuff is put, which is good also, the two making a most excellent combination; the woolen, by its porosity and peculiar structure, preventing the animal heat from being conducted away, and the cotton, silk, or linen, by its thick dense structure, guarding against any currents of air which might do injury.

As to the extent to which parents cover the bodies of their children with clothing, we wish we could yield as hearty an assent. We wish it was the custom to cover the entire bodies of all children; it ought to be. The habit of leaving bare the arms and chest of a child subjected to the same air and temperature that grown folks are, is outrageous. Were children no weaker and no more delicate than men, we should have ample proof of the necessity of having the extremities well clothed; but they are far more sensitive, and the irritation from changes of temperature to the peripheral nerves, the extremities of the child, is very injurious indeed. This, with the irritation from teething, bad air, and improper food, must be reckoned as among the causes of convulsions. Some children are so sensitive, that a slight irritation only in some of the directions we have named, seems sufficient to throw them into some spasmodic trouble. When the frightful extent to which our infant population is affected, and carried off by convulsions, is considered, we should be ready to grasp at any means which can make it less. In the city of Chicago, during the months of July and August, the deaths from this cause were 15 per cent. of all deaths, and the greatest number by any disease save one, cholera infantum.

The inefficient clothing of the extremities induces an irregularity of temperature and circulation to the different parts of the body. To see that these tend to

produce convulsive diseases, we have only to reflect upon the promptness with which the warm bath, one of the most effectual equalizers of the circulation, relieves very many of such attacks.

The bad effects of this system of attire, both in infants and children, are made more aggravating to all philosophic minds by the fact that, as a general rule, there is no sort of necessity for it. It is, in most cases, only a miserable expedient to satisfy a despicable pride which the parents have in the plump, fair form and appearance, of the parts of the child exposed; no other sufficient excuse can be offered. God has blessed the child with fair arms, and chest, and legs, and the parents condemn him to suffer pain and sickness because he has them. We call this pride despicable; that cannot be otherwise which injures any human being, certainly not that which causes a mother to injure her child. Then this state of things is, not unfrequently, the result of the parent's jealousy, lest somebody else's baby may be more beautiful than their own.

The chief cause of infantine mortality, in addition to foul air or too rich or too poor food, is the false pride of many mothers. Children are killed by the manner in which they are dressed as certainly as by any other cause. In our changeable climate, children of the most tender age are left with bare arms and legs, and with low necked dresses. The mothers in the same dress, would shiver and suffer with cold, and expect a fit of sickness as the result of their culpable carelessness. And yet the mothers could endure such a treatment with far less danger to health and life than their tender infants can. A moment's reflection will indicate the effects of this mode of dressing, or rather want of dressing, on the child. The mo-

ment the cold air strikes its bare arms and legs, the blood is driven from these extremities to the internal and more vital organs. The result is congestion, to a greater or less extent, of those organs. In warm weather the heat will bring on affections of the bowels, and this mode of dressing may be reckoned one of the chief causes of summer complaints. But in cold weather congestion and inflammation of the brain and lungs are the result. * It is painful to see children thus dressed like victims for sacrifice.

A little reflection will convince any one that those parts of the body the most remote from the heart, and supplied with blood by smaller vessels than is the body, should be the most specially protected from the cold. To clothe children poorly or with thin clothing in cold weather, does not render them tough and hardy as some people suppose. The effect of cold upon the extremities, long continued, is to cause the gradual contraction or diminution of the blood-vessels upon the surface, and increase the size of the larger vessels within the body, thus inducing congestions internally. The body, comparatively, requires but little clothing to what the extremities do. Keep the extremities warm, and so far as this matter is concerned, all will be well.

The cruelties the tyrant of Fashion inflicts upon his slaves—willing though they be—are indeed appalling. If those only suffered who were the willing slaves of fashion, 'twould be well enough; but the tyrant demands a greater sacrifice, and that, too, of those who are not the willing slaves that fawn around his throne; the infants of our land who are dying by thousands, innocent victims of cruel and ridiculous fashions. Says a distinguished physician of Paris: "During the twenty-six years that I have practiced my profession in this city,

20,000 infants have been borne to the cemeteries, a sacrifice to the absurd custom of naked arms and necks." But we need not go from home for evidence of the fearful effects of this custom. Dr. Warren, of Boston, says: "Boston sacrifices 500 babies every year by not clothing their arms." Granting that a like number are sacrificed in many other cities in the United States, and one's blood grows cold at the thought of such an inhuman and worse than barbarous custom.

Put the bulb of a thermometer into a baby's mouth, and the mercury rises to ninety degrees. Now carry the same to its little hand; if the arm be bare and the evening cool, the mercury will sink to twenty degrees. Of course, all the blood that flows through these arms must fall from ten to forty degrees below the temperature of the heart. Need I say, when these currents of the blood flow back to the chest the child's vitality must be more or less compromised! And need I add that we ought not to be surprised at its frequent recurring affections of the tongue, throat, or stomach? I have seen more than one child with habitual cough or hoarseness entirely relieved by simply keeping the hands and arms warm.

Why should delicate, house-bred little girls wear upon their legs only thin muslin drawers and fine cotton stockings, while great strong men, who are their fathers, wear stout, warm cloth both for drawers and pantaloons, and leather bootlegs besides? Why should the little girls go with their arms and shoulders bare, while their fathers have shirts and lined coat-sleeves on their arms? Why?

A Scotch professor recently strongly condemned the practice of allowing children to go about without sufficient covering for their legs. He said in addition that mothers commit child murder, and then wonder how God

could be so unkind as to take away their darlings. They not only murder their children, but in his opinion commit suicide themselves by exposing their own necks to the cold air. It was a puzzle which he could not understand, that women should cut off the top of their dresses and appear with bare bosoms, in refined society, while that part of the dress which should protect the heart and lungs, and other vital organs, is trailing in the mud.

DAMP AND WET CLOTHES.

When a person is wet he ought never to stand, but to continue in motion till he arrives at a place where he may be suitably accommodated. Here he should strip off his wet clothes, to be changed for such as are dry, and have those parts of his body which have been wetted rubbed with a dry cloth. The legs, and shoulders, and arms are generally the parts most exposed to wet; they should, therefore, be particularly attended to. It is almost incredible how many diseases may be prevented by adopting this course. Catarrhs, inflammations, rheumatisms, diarrhoeas, fevers, and consumption are the foremost among the train which frequently follow an accident of this kind.

A friend inquires, "What shall be done when caught in a shower?" Answer: Put on dry clothes as soon as possible. "Why?" Because damp clothes rapidly chill the surface of the body, the heat being carried off by evaporation. "Suppose your clothes have been wet for some time?" Then give the body a thorough rubbing with a coarse towel at the time of changing clothes.

Hall's Journal sensibly discourses: "Summer showers

frequently overtake persons and 'wet them to the skin;' it is then safer to walk steadily and rapidly on, until the clothes become dry again, than to stop under the shelter and remain there until the storm is over. If home is reached while the clothing is yet wet, take some hot drink instantly, a pint or more; go to the kitchen-fire, remove every garment, rub the whole body with a coarse towel or flannel, put on woolen underclothing, get into bed, wrap up warm, and take another hot drink; then go to sleep, if at night; if in the day time, get up in an hour, dress, and be active for the remainder of the day. Suppose you sit still in the damp clothing; in a few minutes chilliness is observed, the cold 'strikes in,' and next morning there is a violent cold, or an attack of pleurisy or pneumonia, which if not fatal in a week, often requires weeks and months and weary years to get rid of. The short, sharp rule should be, if the clothing gets wet, change instantly, or work or walk actively, briskly, until perfectly dry."

To allow the clothing to dry upon you, unless keeping up vigorous exercise until thoroughly dried, is suicidal. Few persons understand fully the reasons why wet clothes exert such a chilling influence. It is simply this:—Water, when it evaporates, carries off an immense amount of heat, in what is called the latent form. One pound of water in vapor contains as much heat as nine or ten pounds of liquid water, and all this heat must, of course, be taken from the body. If our clothes are moistened with three or four pounds of water, that is, if by wetting they are three pounds heavier, these three pounds will, in drying, carry off as much heat as would raise three gallons of ice-cold water to the boiling point. No wonder that damp clothes chill us.

If the clothes which cover the body are damp, the moisture which they contain has a tendency to evaporate by the heat communicated to it by the body. The heat absorbed in the evaporation of the moisture contained in clothes must be in part supplied by the body, and will have a tendency to reduce the temperature of the body in an undue degree, and thereby to produce cold. The effect of violent labor or exercise is to cause the body to generate heat much faster than it would do in a state of rest. Hence, we see how, when clothes have been rendered wet by rain or by perspiration, the taking of cold may be avoided by keeping the body in a state of exercise or labor until the clothes can be changed, which in every case should be done as quickly as possible, particularly underclothing, as stockings, vests, and shirts; if not, rheumatism will sooner or later set in.

WALL PAPERS AND DISEASE.

There is but little doubt that very many of the papers used for covering walls are colored with pigments which contain considerable quantities of arsenic, which finds its way to the lungs in the shape of dust, it may be in infinitesimal amounts, but still sufficient to exercise unpleasant, if not dangerous influences. There is a peculiarly close smell, rightly described as "fusty," from all papers containing arsenic. This smell appears to be due to the evolution of arseniuretted hydrogen gas, and may be easily detected by most persons possessing sensitive olfactory nerves in nearly all rooms where the paper contains a trace of arsenic, but is more distinctly observable after the paper has been soaked previous to removal.

As a rule, the workmen employed to put up or remove arsenical wall-coverings suffer severely from doing so, but they often hesitate to own the fact, because their livelihood depends on their power of endurance, and their employers endeavor to conceal the danger and make light of it for reasons of their own. It is also said that in the paper manufactories the sickness and mortality among the workmen is very great; but the truth in this matter appears to be studiously concealed from the public, because, as arsenic yields a great variety of brilliant colors, and is exceedingly cheap, it is the interest of the manufacturers to employ it.

If medical officers would exercise close observation as to the coloring of the papers removed in the various houses where there has been sickness, valuable information might be obtained; for although arsenic is used more or less in papers of all colors, those with green in the pattern generally contain larger quantities than other papers, and, the arsenic being combined with copper to produce green, the dust of copper as well as arsenic is inhaled, thus involving a double source of poisoning. Blue papers also appear to be especially injurious, whether they contain arsenic or not, some being covered with blue verditer and others with Prussian blue (also used very extensively in distemper wash for walls and cornices,) both of which appear to have very injurious effects. There is also a blue pigment in use for such purposes, which contains a great deal of arsenic. As all unglazed papers and distemper washes give off more or less dust into the atmosphere, though often imperceptible to the naked eye, it requires no very great stretch of the imagination to realize that poisonous dust thus inhaled cannot fail to do harm; and physicians are well

aware (though in this matter they have hitherto ignored it,) that poisons are still more deleterious when inhaled than when swallowed, being more rapidly taken up by the blood. Consequently, as a variety of poisonous and medicinal ingredients are used for coloring wall-papers and washes, it would appear that our whole system of wall-coverings is probably one of the most gigantic errors in hygiene that has been committed in modern times. Many a medical man is treating, day after day, numerous cases of diseases originating in irritation of the mucous membrane, which simulate almost every morbid condition under the sun, the true diagnosis of which would be "arsenical poisoning."

A physician in western Massachusetts recently had a lady patient who for several weeks had been suffering from nausea, general prostration, and other symptoms of slow poisoning. Failing to discover the cause of the symptoms, as a last resort the doctor requested her to move from her chamber, the walls of which were covered with paper of a very light shade of green; so light, indeed, that in the evening it could scarcely be distinguished from white. After leaving the room the symptoms immediately disappeared, and the patient rapidly recovered. A sample of the paper was forwarded for analysis to the State chemist at Hartford, (Mr. Joseph Hall,) and was found to contain a large quantity of arsenic. Mr. Hall obtained the poison in the various forms of metallic arsenic, yellow tersulphide, silver arsenite and arsenious acid or common white arsenic. He estimates that every square foot of this innocent looking paper contained an amount of the poison equivalent to five grains of arsenious acid, or double the fatal dose for an adult person. This, in the moist warm weather of July

and August was amply sufficient to keep the air of a room constantly impregnated with the poison, and any person occupying such a room would be as certainly poisoned as though the arsenic had been taken into the stomach.

An English chemist states in the *London Times* that a physician of eminence handed to him a quantity of green, flocky dust, which he literally brushed off from the papered wall of a room in which some of his patients had slept, and to which he attributed their complaints. On mixing a portion of this dust with twice its weight of black flux, and subjecting it to a red heat, in a proper tube, a thick white vapor—which was at once recognized as arsenic—distilled heavily from it, and condensed in the upper part of the tube in a metallic form. In another instance, the same chemist says he obtained still more alarming results from portions of a green wreath and some sprigs of bonnet flowers procured from a young lady; from these the heavy arsenic vapor rose in a dense white cloud, condensing on the tube in large quantities, and filling the room with a powerful, nauseating smell. Another illustration, resulting from an examination of particles of green coloring matter belonging to the artificial leaves of a lady's head-dress, is given by Dr. Hoffman, an English chemist and physician of wide repute as a man of science. On analysis, it was found that in a single dozen of these leaves there were ten grains of arsenic; so that in an ordinary wreath there must be at least forty grains. The much-admired green tarletan dresses, formerly so much in vogue, consist of a mixture of tarletan and half its weight of arsenical green, loosely laid on with starch, and dusting off freely with the slightest friction. Of course the

poisonous effect of such a dress must be very great. An easy method of detecting the presence of arsenic in dresses and other articles, is to test them for copper, which is rarely found in these tissues unaccompanied by arsenic. This is readily done by putting a drop of strong liquid ammonia upon the green leaf, or dress, or paper. If it turns blue, copper is unquestionably present.

The Journal of Chemistry advises a correspondent as follows: "We advise you to remove the green room paper at once. Undoubtedly your family are suffering from the poisonous arsenic dust which is detached from the paper. Green window shades, green paper, the green leaves of artificial flowers, green paint, articles of confectionery colored green, are all dangerous. We have analyzed wall papers which contained from ten to fifty grains of arsenic to the square foot."

Many lives have been lost from the laziness or ignorance of paper-hangers, who have laid on one paper above another, instead of tearing off the old one before hanging the new. There was a very handsome house near one of our provincial towns which could never keep its tenants, and at last stood empty and became worthless, because a detestable fever seized upon every family that lived in it. A ready-witted observer promised the owner to find out the cause. He traced the mischief to one room, and presently conjectured what was the matter there. He let a slip of glass into the wall, and found it the next day dimmed with a foetid condensed vapor. He tore down a strip of paper, and found abundant cause for any amount of fever. For generations the walls had been papered afresh, without the removal of anything underneath. And there was the putrid size of old paper inches deep! A thorough clearance, and

scraping, and cleaning, put an end to the fever, and restored the value of the house.

In pasting wall-papers, posters, etc., especially where successive layers are put on, there arise a most disagreeable effluvia, which is particularly noticeable in damp weather. The cause of this is the decomposition of the paste. In close rooms it is very unwholesome and often the cause of disease. In large manufactories, where large quantities of paste is used, it often becomes sour and offensive. Glue, also, has often a very disagreeable odor. If, when making paste or glue, a small quantity of carbolic acid is added, it will keep sweet and free from offensive smells. A few drops added to mucilage or ink prevents mold. In whitewashing the cellar and dairy, if an ounce of carbolic acid is added to each gallon of wash, it will prevent mold and prevent the disagreeable taints often perceived in meats and milk from damp apartments.

Two cases have occurred in Germany, one at Frankfort and one at Jena, where persons using green glazed paper shades were attacked with symptoms of arsenical poisoning, which only ceased when the use of the shade was discontinued. The heat volatilizes the small amount of arsenic present, rendering its effects most dangerous.

THE STOMACH.

Dietary rules cannot be framed which shall apply to all classes and conditions of human beings. The brute creation is governed by instincts which admit of no misdirection in the matter of eating. In man some hints of the instinct remains in the appetites, and in tastes and

distastes which are original facts, often very peremptory, and not to be questioned in their control of diet. Yet there is still much left to be determined by experience and the exercise of our rational faculties. In fact, the persistent necessity of statedly filling the stomach with food to its satisfaction or distress, may be assumed to be the first driving cause, forcing the mind to exercise, and calling out mother-wit. The first dawning of thought in a baby's mind is about something to go into its mouth; from this down to the second childhood there must be a good deal of thought bestowed on the food, first and last. Scientific experts tracing particles of food of every kind, as far as they are able, to their destination in the living issues, have discovered very many interesting facts, and it should seem that they ought to be able to lay down positive rules regarding food. But the intricacies are found to be very great, and theoretical diets are constantly put to shame by the actual practice of men. In any case a good digestion and healthy body are indications that a person is doing well enough, and he had better let well enough alone. Certainly if he begins to theorize on the subject, become anxious about his food, and make daily inquisition as to the state of his digestive organs, no matter what he eats, he will develop mischief. The stomach is one of those sensitive things which will blush into an inflammation or congestion, or something distressful, if you shock its modesty by dragging it into notice.

The emotion of the mind has a powerful influence on the stomach. Let a person who is about to sit down to dinner with a good appetite receive a piece of news, either exceedingly joyful or exceedingly distressing; his appetite goes in a moment. Children who are about to

set out on a pleasant journey, it is well known, cannot eat. This, when I was a child, was called going "journey proud." On the other hand, a blow on the stomach will sometimes take away life instantly; a drink of cold water when the body has been very hot has often had the same effect. Attend to your companions when on a journey afoot; as their stomachs grow empty, how sullen and silent the whole party becomes. Let a crust of bread, a little cheese, a glass of ale or wine be taken, and cheerfulness immediately reigns even long before any nutriment has had time to reach the general circulation. These things also show the general sympathy between the stomach and every other part of the body.

Dio Lewis submits that a man's stomach is nearer to his soul than his brain; that dyspepsia ruins character, and that the examination of a man's liver gives a better clew to the kind of man he is than an examination of the skull.

Beecher says in Norwood: "One of these days men will call things by their right names. Then they won't say "he's of a good disposition," but "he has a good stomach." Half the grace that is going is nothing but food.

Sir Astley Cooper, the famous English surgeon, once said that no man ought to be aware, from his sensation, that he had a stomach. Alas! how many thousands of Americans are painfully and almost incessantly reminded of the existence of that organ! Dr. Franklin's Conversation with the Gout was not accompanied by more unpleasant twinges than are experienced by a countless host of dyspeptics every day.

Some author says, that your wife, your stomach and your conscience, are three companions with whom you should always be on good terms.

Speak disrespectfully of the stomach if you will, consider it a vulgar word not to be mentioned in polite society if you please, yet you cannot deny that it is your master. It orders, and you must obey; if indisposed, you cannot resist its action, or body and mind languish. Words cannot describe the important part it plays in our organization. He who despises it soon learns what he must suffer. No imprisonment, no punishment, can equal the tortures it will inflict upon you, if you have disregarded its warnings—have said, “I am not your slave.” It is not the business of life to eat; and yet without eating there would be little business transacted, that we must all allow; and it is not beneath the notice of any of us to attend carefully to that business, and to see that we eat not only the needful food, but the proper food. And yet each person must be his own judge in that matter. Brute instinct often exceeds human reason, for it teaches the animal what he may or may not eat and drink with impunity. Give a dog ardent spirits and he will never forget it. If given him in a glass, he will growl at you, if you even show him one. Not so with man, though daily experience shows him how pernicious is the use of strong drink; yet daily he will taste a little, until his stomach cries out against the practice, and impaired digestion and disordered liver teach him the errors of his ways. Better for him the brute’s instinct!

Dr. Buchan tells us “there is no doubt but the whole constitution of body may be changed by diet.” We all know that the best physicians we can employ are Dr. Diet, and Dr. Quiet and Dr. Merryman. They ask no fee, are ever ready to attend us, and their prescriptions are always advantageous to body and soul. But alas! how few of us are ready to listen to their advice. When

in health we neglect our master, the stomach's warnings and reprimands; and when we suffer for that neglect, refuse to attend to the prescriptions of the physicians who can best aid us. The stomach will rule, and we must bow down before it, and inquire its will. It is said that Napoleon lost the battle of Maida from a fit of indigestion; proving that the greatest warrior known since the days of Rome and Greece, was a slave to the stomach! There is a German proverb that tells us "the stomach has no ears." Daily we prove its truth. Had it ears and could give us timely warning of what is for our good to eat or to drink, how much suffering we might be spared! We must eat; oh if we could only know what is best for us to eat!

The greater part of the lives of many individuals is passed in preparing food for our master, the stomach. How much time, suffering, and money might be saved if, like the inhabitants of the moon, we fed only once a month. Baron Munchausen says, "They lose no time at their meals; but open their left side, and place the whole quantity at once in their stomachs, then shut it up till the same day in the next month, for they never indulge themselves with food more than twelve times a year!" Think of that, ye house-wives who toil daily over stoves, dishes, and tables! We fear you will break the commandment which enjoins you not to covet your neighbor's possessions.

WHAT PEOPLE EAT.

"Some'at good and plenty of it," was John Brodie's idea of a good meal, and we should all agree with him. As to the question of what is good, there would be a

diversity of opinion. If a young gentleman could be chosen from every nation on the earth, and each one should exhibit the delicacy most prized by his people, it would be a curious sight; and we think that each representative would be so astonished at the strange taste of the rest that he would forget to eat his own favorite dish. Our American habits of living need no description; so, with the undisputed truth, that we live better than any other people, and that foreigners get dainties here that they only heard of at home, we will spend a few minutes in considering what other folks eat. We are told that inferior races like inferior food, and that the choice of food shows the noble or ignoble nature of the eater. But who has any business to decide as to what kind of diet is superior.

We will begin at the other side of the world, because the emigrants from that quarter have just now a special interest for us. And we find that the greatest delicacy with the "heathen Chinees" is a swallow's nest. To be sure he soaks it and whitens it before cooking it, but, after all, it is—what it is. The Mongol fattens mice and rats for the market just as we fatten pigs. Which is the cleanest beast of the three, we cannot decide. The children of Israel, under the administration of Moses, were not permitted to eat either; though whether the smaller animals have anything about them to offset the scrofula and trichina of the swine, is not recorded. Earlier, in the times of Noah, the taste was not restricted. "Every moving thing that liveth shall be meat for you." This was the divine grant, and it covered the whole ground as to the question of animal food. And it includes the various diet of the different nations now. A favorite Chinese luxury is the common rain worm. Some eat it

raw, some roast it, but all like it. In the West Indies, they roast the famous palm-worms on little spits, and spice them up with the nicest skill for a table relish. The grugrue-worm of Java is a still richer luxury. Silk-worms, daintily dressed, are an especial delicacy.

Almost every country-bred boy or girl has noticed the huge green worm that feeds on the tomato and potato vines; also the bigger abomination that chews tobacco. We mean the tobacco-worm—not the man or boy who chews the weed. Well these disgusting worms are all eaten by portions of our race, and are highly esteemed too. The Indians of Orinoco eat these wriggling tid-bits raw, and they eagerly devour centipedes eighteen inches in length. The royal family of Japan dine on leeches. But the “Chinee” excels all others in getting up worms artistically. The children of the “Flowery Kingdom” even raise the larvæ of blue-bottle flies in putrid fish on the sea-shore, and they eat no less than thirty-six varieties of the disgusting trepangs, a sea-worm of the most ugly shape and the most horrible smell that ever was invented. The red sea-nettle is another kind of worm, and this is eaten in Southern France and Italy. It may, therefore, be reckoned as a dish belonging to civilization. They sprinkle the worms with flour and fry them in oil. Aside from their delicious flavor, they are highly nutritious. The pickled snails of Europe are not particularly attractive to the sight. Their slimy, slippery forms excite repulsion, and we feel as if nothing short of a miracle could overcome the feeling sufficiently to enable us to handle the dirty-looking creatures—without swallowing them. But they are roasted or smoked for daily use as a relish; and they are potted for the market, and sent by millions to foreign nations. Do you

know that our own favorite oyster belongs to the snail family? It is not more lovely in appearance than others of its kindred, and would doubtless present no temptation to the taste of many of the heathen whose diet we have been considering.

Insects make no small figure in the world's bill of fare. We have all read about the locusts of the East; they furnish one of the staples of African diet. Pickled in vinegar, they are a rare delicacy. John the Baptist ate them with honey. Some suppose that it was the vegetable locust that he ate in the wilderness, but the probability is in favor of the insect. In New Caledonia, spiders are preferred to all other food, and roasted moths tickle the palates of the natives in New South Wales. Bees are used for spice in Ceylon, and if their taste is as pungent as their sting, they must make a valuable condiment. The soothing, agreeable acid of ants is highly prized in Brazil. Our indifference to this luxury would be incomprehensible there. The white ants of Africa, those big termites whose pictures frighten us in our descriptive geographies, are roasted like pop-corn, and eaten by handfuls in the same way. The parching makes them crisp, and they snap in eating like confectionery. In the East Indies, they are baked in pies for the public market. But no nation can beat the natives of Peru and the Hottentots in the choice of delicacies. Their favorite one is not so much food as a relish. They hunt for it carefully through the thick bushy hair—or rather wool—of their children, and feast on the minute game with appetites that are never satiated.

The Mexican and the Spaniard used to eat the ugly speckled salamander, and it would take a volume to describe the various abominations that made up the

diet of ancient, classic Greece. We should have to be pretty hungry to eat snakes, though we do not object to their cousins, the eels. Yet vipers are a favorite dish with the Italians. The Chinese salt and pickle them, and they find a ready market in most Eastern countries. The monstrous boa-constrictor is preferred by the negroes to any meat that we could offer them. The terrible anaconda furnishes the table of the Brazilian peasant with wholesome food, and our red Indians in the far West feast on the fatal rattlesnake. Toads are eaten in Surinam; frogs everywhere. The musky odor of the crocodile does not detract from his value as an article of food, and alligators are readily accepted both by negroes and white men. It were an endless task to enumerate all the "moving things" that come under the comprehensive term of "vituals." If there is any creature that the human race do not eat, it would be a good plan to mention it. The worst thing about it is that we swallow all this unsightly animal diet, when our bountiful mother Earth offers, in her various vegetable products, a clean, wholesome living to us all. She proffers her delicious fruits and inviting grains, and we see that everything is beautiful after its kind. But, like the Israelites in the wilderness, our souls loathe this light food. We hanker after the flesh-pots, and so afford a strong argument in favor of the doctrine of total depravity.

There are many civilized persons and some Christians who eat sausages.

Dr. Wise says: Nor does man refuse to use insects as food. Even we, highly civilized as we are, do not reject the lobster, the crab, or the shrimp, which though not strictly insects, are only articulate animals, and until recently were classed with insects by our best entomolo-

gists. Now the Arab would be disgusted to see us feasting on lobster salad; yet he finds great delight in masticating a locust. In both the Indies, epicures eat the grub of the palm weevil, which is as large as your thumb; and the ancient Greeks are mentioned by Ælian, as esteeming a roasted grub very delicious food. Locusts are an article of food in many parts of the world. The Ethiopians were called locust eaters on this account by the Romans. The Arabs make them into bread, first grinding or pounding them, and then mixing with their flour. They not unfrequently eat them boiled and stewed. The Hottentots esteem them highly, and grow fat on them. They all make their eggs into soup. Their traditions teach that they are indebted to some conjuror for the coming of the locusts. He lives a long way northward, they say, and removes a huge stone from the mouth of a deep pit so that the locusts may escape and fly to them for food. The Moors of Barbary prefer locusts to pigeons.

The Chinese, who cannot afford to waste any edible thing, cook and eat the chrysalis of the silk-worm, and the larva of the hawk moth. The caterpillars of butterflies are eaten by the natives of New Holland, and also the body of a butterfly called Bugong. Ants have their place with articles of human diet. Hottentots eat them both raw and boiled. The East Indians mix them with flour and convert them into a popular pastry. In Sweden ants are used to flavor brandy. In Ceylon bees are used for food. In New Caledonia the people eat a large spider, esteeming it a luxury. It is recorded that Anna Maria Schûremen used to eat them like nuts, and declare they were not unlike that fruit in its taste. Lalande, the celebrated astronomer, was equally fond of

these delicacies; and Rosel knew a German who spread them on his bread like butter. Humboldt caps the climax of these edible monstrosities, assuring us that he has seen Indian children drag centipedes, eighteen inches long and more than half an inch broad, from their holes and devour them. While these curious facts illustrate the adage that there is no accounting for tastes, they also show that insects are useful as food for man, and that, in great extremities, he might be saved from destruction by placing them among his articles of diet.

WHAT SHOULD WE EAT.

“Without phosphorus no thought,” said a German philosopher. If his deliverance is true, then thinking men should eat unbolted wheat flour and fish. The large consumption of salt cod by New Englanders may, on this theory, account for their amount of brain work. Those who expect to think, should not eat much food which simply produces warmth and fat, such as ham, fat pork, white bread, butter, rice, tapioca and starch. These contain very little phosphatic food, being carbonaceous.

The proper food for laboring men—we mean those who have to exercise muscular strength—should be that which contains the greatest amount of nitrogen. Among these barley and cheese stand high. The red flesh of the ox or sheep and unbolted bread are the leading articles. Men who train prize-fighters seem to understand much better than others how to build up physical strength and endurance. When their battle or race is ended they lay aside their unbolted bread and fruit, their lean beef and mutton, and fall into their old habit

of liquor-drinking and of eating starch-bearing articles, such as rice, fine bread, pudding, with fat meat and butter, and they soon become as fat and lazy as these carbonaceous articles can make them.

If a man wants to stand the cold, he may eat buckwheat cakes and butter, syrup, fat pork and white beans; but let him look out when hot weather comes for bilious fever, pimples on the face, and a rank smell of the whole system, and a muddy dirty complexion. Men living at the north pole, or near it, drink fish oil by the quart, or eat pounds of cake tallow, and the cold climate will burn it out; but in warm or temperate regions the food should be so selected as to furnish nourishment for muscle, bone, brain and warmth, in proper proportions.

The student should eat articles which are pretty largely charged with phosphates or brain food: the laborer those articles containing nitrate or food muscle: and those who are much exposed to cold, but not required to exert muscular strength, that kind of food which is largely charged with carbonates or heat producers.

Many people who are in comparatively reasonable health complain that they know not what to eat—that they have no appetite. All persons should not eat alike, but somewhat according to their various occupations. If your occupation is such as takes your muscular strength, then make use of muscle-making food. It is chiefly composed of lean beef, mutton, wheat, rye, oatmeal, beans, peas, milk and cheese. Students and men who work hard with their heads, and but little with their arms, need more of brain-producing food, and less of other kinds. The brain of man and animals alike contains a small portion of phosphorus. Hence brain-pro-

ducing food must contain this element, which is found most abundantly in oysters, eggs, fish, lean meat, wheat, peas, and beans. The brain of other animals are considered good food for the human brain. The prize-fighter, who wants muscle, and little brain, trains on nearly raw beef, which is clear muscle. Students, who want brain, and less muscle, must adopt a more fishy diet. The third class of food consists largely of carbon as an element. Such articles are sugar, butter, fat meat, sweet-oil, potatoes, rice, Indian corn and the like. They are mainly consumed in the system for the purpose of keeping up the animal heat. Just as coal, which is nearly pure carbon, warms our rooms, so do these carbonaceous kinds of food warm our bodies.

We eat to keep warm and sustain strength, and all articles of food have these two elements in varying proportion. Oils, tallow and whale blubber are almost wholly of the warming element; hence in Greenland, where the thermometer is many degrees below zero, and a great deal of heat is required, a native will drink gallons of oil every day, or eat pounds of tallow. In the hottest climates of the world, the inhabitants live, to a great extent, on fruits and vegetables, which have but very little of the heating qualities. In our climate which is between the two, meats, vegetables and fruits are eaten all the year round; but if eaten judiciously, if eaten according to the season—more of fruits and vegetables in summer, and less of meats and fats,—an incalculable amount of sickness would be prevented every year.

We would think a man deranged who should keep as large fires burning in his house in summer as in winter, and yet we all persist in eating meats, and fats, and butter all through the summer. Meats and butter are on

our tables three times a day, when in reality they ought to be sparingly used during the summer months, at least by the young, the old and the feeble, and by all who are most of the time in-doors, or who have no active employment. For the classes just named, a very appropriate diet for the summer would be as follows :

Breakfast—cold bread and butter, a slice of cold meat, or in its place a couple of eggs, or a saucer of berries or stewed fruit without milk, cream or sugar. The same for dinner, with one vegetable; no other dessert. For supper, some cold bread and butter, and a cup of hot drink, nothing else; nothing whatever between meals. So far from starving on such a diet, the class of persons above named would thrive on it, and grow stronger every day, would have more bodily vigor, more mental elasticity, and a greater flow of animal spirits, and for the reason that few would eat too much; there would be nothing to over-tempt the appetite, hence the stomach would not be overworked; what work it did perform would be well done; the blood made would be pure, life-giving and energizing. Any man of ordinary intelligence and observation, who will give a fair trial to the above system of feeding, will scarcely fail to be convinced of its value within a week after he begins it.

The wholesomeness of food depends nearly as much on the time it is taken as on the quantity. We have grown so luxurious in our physical as well as mental tastes, that we are constantly tempted to eat things out of season. Yielding to the temptation, as we often do, we pay the penalty, soon or late, in temporary or chronic derangement of our health. The meat which is excellent in cold, may not be desirable in warm weather; fish is best during spring and early summer; vegetables and

fruit are nutritious when they are fully ripened by sun and season, and not artificially stimulated. Nature knows what she is doing; she furnishes for every latitude the productions fittest for such latitude. We need variety, not so much at one time, as from time to time. The delicacies of the season will not hurt us; but the delicacies out of season certainly will, if long continued. The appetite so jaded as to crave oysters in July, or strawberries in December, needs careful correction by the adoption of the simplest habits. The palate naturally relishes what Nature has near at hand. As a rule, not only is the simplest food the best food, but the most seasonable is, in the long run, the most appetizing. There is no difficulty in determining what we should eat, since the products of our climate show us plainly month by month. Fish, flesh and fruit, by their plumpness, tenderness and ripeness, themselves denote when they are ready to be eaten. A sound stomach will profit by whatever an unspoiled palate enjoys.

Young persons can hardly underestimate the advantages of plain, simple food, in maintaining health and promoting longevity. Mixed dishes and high seasonings, are the foes of old age, as well as the common causes of rheumatic affections, bilious attacks, dyspepsia, colic, &c. The difference between a simple dietary and the ordinary compounded and seasoned dishes is just the difference between dying at forty or sixty or at eighty or one hundred. Cornaro, whose health broke down at forty, adopted a very simple and regular plan of diet, by means of which he regained good health; and by adhering rigidly to it he lived to nearly one hundred years of age.

Most chronic diseases, and many acute ones, are pro-

duced at the table. As a rule no fluid of any kind should be taken at the table, especially if the stomach is weak. The stomach should never be overloaded; not more than two or three articles should be taken at one meal; no stimulants to be used especially just before eating.

Resistant solid material, as well as elements of nourishment, are essential in food. Neither cattle nor horses could be kept alive long on fine flour, meal, or grains of any kind. Mixed, however, with grass, dry hay, or straw, they thrive. The walls of the stomach and bowels must be kept apart by solid material, on which friction may be exerted, in order to have perfect digestion. A dog lived twenty-one days, the only survivor of a wrecked vessel at sea, closely shut up in the cabin, by eating the thick, strong wood and leather binding of a Bible, while experiments with dogs fed on soft food, as gelatine, thin soups, etc., proved that they could not live a single week on such diet.

Those persons whose diet is rather coarse, as bread of unbolted flour, large fruit eaters, bread and milk people in the country, etc., are exempt from the pains of dyspepsia. Those sustained mainly on very fine, concentrated, delicate food, washed down with tea, are gaunt in form, weak in muscle, and always taking medicine. Their food should have more bulk and solid, hard ingredients. A poor man's family never lack for an appetite with a crust of brown bread. His neighbor's darlings, surfeited on rich cakes, highly seasoned dishes and nurtured in luxury, are the life of doctors and druggists.

Dr. Hall says the cheapest articles of food are bread (especially corn meal), butter, molasses, beans, and rice. He shows that 25 cents worth of flour, at 8 cents per

pound, contains as much nourishment as \$2.25 worth of roast beef at 25 cents per pound; and that a pint of white beans, costing 7 cents, has the same amount of nutriment as $3\frac{1}{2}$ pounds of beef at 25 cents per pound, or, in other words, the roast-beef diet is *twelve times* as expensive as the beans. Furthermore, a pound of Indian meal will go as far as a pound of fine flour, costing nearly twice as much. Here are some of the common articles of food, showing the amount of nutriment contained, and the time required for digestion:

	Time of Digestion.	Amount of Nutriment.
Apples, raw.....	1 h. 50 m.	10 per cent.
Beans, boiled.....	2 h. 30 m.	87 per cent.
Beef, roasted.....	3 h. 30 m.	26 per cent.
Bread, baked.....	3 h. 30 m.	80 per cent.
Butter	3 h. 30 m.	96 per cent.
Cabbage, boiled.....	4 h. 30 m.	7 per cent.
Cucumbers, raw.....	2 per cent.
Fish, boiled.....	2 h. 00 m.	20 per cent.
Milk, fresh.....	2 h. 15 m.	7 per cent.
Mutton, roasted	3 h. 15 m.	30 per cent.
Pork, roasted	5 h. 15 m.	24 per cent.
Poultry, roasted.....	2 h. 45 m.	27 per cent.
Potatoes, boiled.....	2 h. 30 m.	13 per cent.
Rice, boiled.....	1 h. 00 m.	88 per cent.
Sugar.....	3 h. 30 m.	96 per cent.
Turnips, boiled.....	2 h. 30 m.	4 per cent.
Veal, roasted.....	4 h. 00 m.	25 per cent.
Venison, boiled	1 h. 30 m.	22 per cent.

Some vegetables and fruits should enter into the family consumption, even if purchased for sanitary reasons. Among those which contain the most saccharine matter, sweet potatoes, parsnips, beets and carrots are the most nourishing. Roast pork, besides being an expensive dish, requires too lengthy a drain upon the forces of the stomach to be a healthy article of diet.

The following table exhibits an analysis of different

kinds of food in their natural state desirable for different kinds of workers:

	Nitrates, or Food for Muscle.	Carbonates, or Heat Producers.	Phosphates, or Food for Brain and Bone.	Water.
Wheat, unbolted,.....	14.6	66.4	1.6	14.0
Barley,.....	12.8	52.1	4.2	14.0
Oats,.....	17.0	50.8	3.0	13.6
Rye,.....	6.5	75.2	0.5
Northern Corn,.....	11.3	67.5	1.1	14.0
Southern Corn,.....	34.6	39.2	4.1	14.0
Buckwheat,.....	8.6	53.0	1.8	14.2
Beans,.....	24.0	40.0	3.5	14.8
Peas,.....	23.4	41.0	2.5
Rice,.....	5.1	82.0	0.5	9.0
Potatoes,....	1.4	15.8	0.9	74.8
Sweet Potatoes,.....	1.5	21.8	2.9	67.5
Asparagus,.....	0.6	5.4	0.4
Parsnips,.....	2.1	14.5	1.0	79.4
Carrots,.....	1.1	12.2	1.0
Turnips,.....	1.2	4.0	0.5	90.4
Cabbage,.....	1.2	6.2	0.8	91.3
Cucumbers,.....	0.1	1.7	0.5	97.1
Apples,.....	5.0	10.0	1.0	84.0
Milk of Cows,.....	5.0	8.0	1.0	86.0
Beef,.....	19.0	14.0	2.0	65.0
Veal,.....	17.7	14.3	2.3	65.7
Mutton,.....	21.0	14.0	2.0	63.0
Lamb,.....	19.6	14.3	2.2	63.9
Pork,.....	17.5	16.0	2.2	64.3
Lard,.....	0.0	100.0	0.0	0.0
Venison,.....	20.4	8.0	2.8
Chicken,.....	21.6	1.9	2.8	73.7
Butter,.....	0.0	100.0	0.0	0.0
Cheese,.....	30.8	28.0	4.7	
Fish,.....	15.0	Very little.	5.5	
Oysters,.....	12.6	0.0	0.2	
Clams,.....	12.0	Very little.	2.5	
Lobsters,.....	14.0	Very little.	5.5	

REGULAR EATING.

Half of all ordinary diseases, says Dr. Hall, would be banished from civilized life, and dyspepsia become almost unknown, if everybody would eat but thrice a day at regular times, and not an atom between meals, the inter-

vals being not less than five hours, that being the time required to digest a full meal and pass it out of the stomach. If a person eats between meals, the process of digestion of the food already in the stomach is arrested, until the last which has been eaten is brought into the condition of the former meal; just as, if water is boiling and ice is put in the whole ceases to boil until the ice has been melted and brought to the boiling point, and then the whole boils together. But it is a law of nature that all food begins to decay after exposure to heat and moisture for a certain time. If a meal is eaten, and in two hours another, the whole remains undigested for seven hours, before which time the rotting process commences, and the man has his stomach full of carrion—the very idea of which is horribly disgusting. As, then, all the food in the stomach is in a state of fermentive decay, it becomes unfit for the purposes of nutrition and for making good pure blood. Small wonder is it that dyspeptics have such a variety of symptoms, and aches, and complaints in every part of the system, for there is not one drop of pure blood in the whole body; hence, the nerves, which feed on this impure and imperfect blood, are not properly nourished, and, as a consequence, become diseased. They “complain;” they are hungry—and like a hungry man—are peevish, fretful, restless. We call it nervousness, and no one ever knew a dyspeptic who was not restless, fretful, fidgety, and essentially disagreeable, fitful and uncertain.

The stomach is made up of a number of muscles, all of which are brought into requisition in the process of digestion. But no muscle can work always. The busy heart is in a state of perfect repose for one-third of its time. The eye can work twice in a second, but this

could not be continued five minutes. The hands and feet must have rest, and so with the muscles of the stomach; they only can rest when there is no work for them to do—no food in the stomach to digest. Even at five hours' interval, and eating thrice a day, they are kept constantly at work from breakfast until the last meal is disposed of, usually ten o'clock at night. But multitudes eat heartily within an hour of bed time; thus, while the other portions of the body are at rest, the stomach is kept laboring until almost daylight, and made to begin again at breakfast time. No wonder is it that the stomach is worn out—has lost its power of action. Many girls become dyspeptic before they are out of their teens, in consequence of being about the house and nibbling at everything they lay their eyes on that is good to eat.

If you would enjoy good health, be regular in all your habits. Have regular times for eating, and eat at no other times. Whatever system you adopt—one, two, or three meals per day—be regular about it. Do not eat two meals one day, and three the next. Better eat three meals every day. Retire and rise at regular hours. Have a regular time for exercise. Arrange your work, whatever it may be, so that it can be attended to during certain hours, and have other regular hours for recreation, study, etc. In short, have a regular time for everything, as far as possible, and let everything be done at the appointed time. A regular diet cures more people than physic.

If any man or woman of forty-five or over, not engaged in hard natural labor, especially the studious, sedentary and indoor livers, would take but two meals a day for one month, the second not being later than three in the

afternoon, and absolutely nothing afterwards, except it might be in some cases an orange or lemon or cup of warm drink, such as tea, broma, sugar water, or ice cream, there would be such a change for the better in the way of sounder sleep, a feeling on waking of having rested, an appetite for breakfast, a buoyance of disposition during the day, with a geniality of temper and manner that few, except the animal and the glutton, would be willing to go back to the flesh pots of Egypt. "Ben Wade," as he is familiarly called, one of the political lions of the West, has taken but two meals a day for twenty years; and if all sedentary persons, those who are in-doors a greater part of their time, would, after the age of forty-five, observe the same inflexible rule, there can be no doubt, other things being equal, that long years of happy exemption from the ordinary ills of life would be the result. The reason is that the stomach would have time to rest, for recuperation, and would thus be able to perform its part more thoroughly, making purer blood, giving better sleep and securing a good appetite for breakfast. Let any man try it for ten days, taking the second meal seven hours after the first, and abandon the practice if he can.

There are hundreds who have adopted the two-meal system, and find that it works well. They enjoy better health, and are able to perform more work than before. And this is the result, not only with students and men of sedentary habits, but also with farmers and mechanics. Those who have not tried the plan, think it impossible to endure hard labor upon two meals; but if they will allow that those who have proved it are prepared to judge, they must change their minds. Facts are stubborn things. The unanimous testimony of hundreds who

have thoroughly tested it, both in summer and in winter, puts the matter beyond a doubt. When the old habit is once broken up, there is no desire for the third meal. The trouble of a late supper is avoided, the digestive organs have rest, and in the morning there is no dull headache, no bad taste in the mouth, and the "all-gone" feeling is forever gone. My own experience the past five years, with that of so many others whom I personally know, makes the reform a living reality to me. If any are disposed to doubt, let them give it a fair trial, then judge.

The Greeks ate but two meals; the first at midday, the second at evening. The first usually consisted of fruits.

A bad custom is prevalent in many families, especially among the farmers, of working an hour or two before breakfast, attending to "chores," hoeing in the garden, cutting wood, mowing, etc. This is convenient on many accounts, but it is not conducive to the health. The prevalent opinion is that the morning air is the purest and most healthful and bracing, but the contrary is the fact. At no hour of the day is the air more filled with dampness, fogs and miasmas, than about sunrise. The heat of the sun gradually dissipates the miasmatic influences as the day advances. An early meal braces up the system against the external influences. Every one knows the languor and faintness often experienced for the first hour in the morning, and that is increased by want of food. We do not agree with the boarding school regime, which prescribes a long walk before breakfast as a means of promoting health. Probably the best custom would be to furnish every member of the household, especially those who labor out of doors, with a single cup of coffee well milked, immediately after rising

from bed. Then let them attend to their chores, or mowing, hoeing, etc., for an hour or two, while the teams are feeding and the breakfast preparing. They will feel better and do more work.

It promotes health to take a good, warm, nutritious breakfast early on a winter's morning, because the heating material taken at supper has been used up during the night; and if not early supplied in the morning by more food, the whole body is liable to cool down to a chill, which may produce inflammation of the lungs, and death within five days. Little children and old persons, and the feeble of every age, having but a small surplus of heat in winter, are especially liable to inflammatory diseases by being kept too long, in cold weather without food. From supper to daylight is a long enough interval without food, except to the robust, active and vigorous; and even these latter are the safer for the shorter interval which the early winter breakfast gives.

The earlier the breakfast, the more work will be got through with during the day, and the better health will the household have, because food or warm drink in the stomach antagonizes the disease-engendering damps, fogs, and miasma, which impregnate the air about sunrise in all countries, especially in warm weather.

The morning meal or breakfast—the “early bit” of the Germans—is, perhaps, the most important of the day. According to Erasmus Wilson it is usually “taken at eight or nine.” The proper period for that purpose must however depend upon the time at which the party rises. About an hour after leaving the bed will be found the most appropriate for the morning meal. By that time the powers of the system have fully recovered from the inactivity of sleep, and the functions of the stomach

and other viscera have again come into play. The appetite is excited, and seeks appeasing; and both instinct and reason direct us to the social board. If abstinence is now prolonged, the physical and mental energies, unsupported by a supply of food, which indirectly gives them birth, gradually lessen, and incipient exhaustion ensues. The fluids of the stomach and smaller tissues begin to act upon the coats of those viscera instead of the food, and an unpleasant feeling of hunger or a loss of appetite comes on as a natural consequence. When breakfast cannot be taken within a reasonable period after rising, the gap should be filled up by chewing a crust, biscuit, or the like. A raw egg or two, from the shell, or broken into a teacup and drunk, will be found most valuable for the purpose. Raw milk, cheese, salted food, and other indigestible matter, should be particularly avoided at this early period of the day.

FOOD AND APPETITE.

The omniverous capabilities of man are no other criterion than of his powers, surely, not of his excellences. The history of tribes of men who subsist wholly on animal food, shows them to be wilful, brutal, and barbarous; while there are numerous instances of the greatest intellectual capacity among men who have wholly excluded it. The arguments derived from the teeth and the digestive apparatus are in no respect available to establish anything more than man's capability of sustenance on either or both animal and vegetable diet. Though man is the summit, the very crown and triumph of the works of the Creator, and in both the excellence of his organ-

ism and the powers of his intellect combines the perfection of development, he is not on this account so constituted as to make the utmost of his capabilities a necessity to his excellence.

Chemical analysis of the kind and quantity of food habitually taken by persons in the highest state of health, shows that in the gross it is no richer in the necessary materials for the support of the system than many compounds wholly consisting of vegetables, and that by no possible contingency can there exist such an abundance of the essential elements necessary to animal life in any meat diet, as is common to several of the single articles of vegetable production.

The relative value of different articles of food depends upon the amount of material they contain applicable to the formation of tissue and the production of animal heat. But this amount must be measured by the powers of assimilation to the wants of the system, rather than by the quantity actually present in the substance used. Thus an aliment abounding in nutritive matter may be inferior to one containing a smaller proportion, if only a part in the former, and the whole in the latter, be readily absorbed in the process of digestion.

The proportion of albuminous or nitrogenous matter in any substance may be regarded as a standard of its formative value; and the proportion of oleaginous or non-nitrogenous matter, the standard of its heat-producing power. The former of these groups furnishes the whole of the elements of *porteïne*, with the necessary salts, and the latter principally consists of carbon and nitrogen. The *proteïne* elements are those which are essential to all organic bodies; and inasmuch as these are of the *first* importance, the Greek word *proteïne*, signify-

ing, "I occupy the first place," has been chosen to designate them.

The respective value, in weight, of the nitrogenous and the non-nitrogenous compounds to the necessities of the human system, is one of the former to seven of the latter. The mixture of these compounds, together with the inorganic matters which exist in connection with them, comprehend all the elements essential to the sustenance of man.

The quantity of food required for the maintenance of the human body in health varies so much with the age, sex, constitution, and habits of the individual, that no standard can be fixed. The appetite is the only sure guide, but its indications should not be misinterpreted. To eat when we are hungry, and to drink when we are thirsty, is a natural inclination; but to eat as long as we are hungry or thirsty is a very different thing. The feeling of hunger or thirst depends less upon the state of the stomach than upon the condition of the system; hence, it is evident that the ingestion of food cannot at once produce the effect of allaying hunger, though it will do so after a short time. So that, if we eat too rapidly we may continue to swallow food long after having taken as much as will really be required by the wants of the constitution, and every superfluous particle is not merely superfluous, but injurious.

Thousands of persons have been prematurely laid in their graves simply from eating heartily when the system was not in a condition to properly digest and appropriate the food. Let this rule be observed by those who desire health with all the untold blessings which always accompany it: whether sick or well, do not force food into the stomach unless there is a demand for it. No

fears need be entertained of starving, for a desire for food will be manifested long before the starvation point is reached.

It is wrong to eat without an appetite, for it shows there is no gastric juice in the stomach, and that nature does not need food, and not needing it, there being no fluid to receive and act upon it, it remains there only to putrefy, the very thought of which should be sufficient to deter any man from eating without an appetite, the remainder of his life. If a tonic is taken to whet the appetite, it is a mistaken course, for its only result is to cause one to eat more, when already an amount has been eaten beyond what the gastric juice is able to prepare. The object to be obtained is a larger supply of gastric juice, not a larger supply of food, and whatever fails to accomplish that object, fails to have any efficiency toward the cure of dyspeptic diseases. The formation of gastric juice is directly proportioned to the wear and tear of the system, which it is to be the means of supplying, and this wear and tear can only take place as the result of exercise. The efficient remedy for dyspepsia is work—out-door work—beneficial and successful in direct proportion as it is agreeable, interesting, and profitable.

Multitudes eat when they do not feel any appetite, simply because it is the regular eating-time, apprehending that if they do not then eat, they will afterwards become hungry when it may be very inconvenient and even impossible to get anything at all to eat. This forcing food into the stomach against the instincts of the body is a wicked waste of power; is a fighting against nature, and puts man below the brutes which perish, for they never go against their instincts. Irregularity in

meals is a dangerous habit; but it is never wise to force food into a reluctant stomach for the sake of regularity.

Many persons regard a hearty desire for food as something unrefined, indelicate, and to be constantly discouraged. This is a greater and more harmful mistake than that of coaxing the appetite. It is just as necessary for the man who works only with his brain to eat beef and mutton, as for the man who labors solely with his hands. The stomach and the brain are twins; the former being the elder, and having prior right to care. Let that be well provided for, and it will sustain its brother. The people who strive to check a wholesome and natural appetite are the people who regard dinner merely as a feed, not the center of an agreeable social custom, and as the domestic event of the day. We are sorry for them, as they must regard eating at all as a prosaic duty, obligatory on them because they have a bias in favor of living. We all know that we must eat to live; but we by no means live to eat simply because we enjoy what we eat. We are not gourmands because we relish chops, nor are we invalids because we want strawberries. A good appetite is a good thing; but not if it is to be worried by urging or by neglect.

It is nearly always best to consult the instinct of appetite as to the kinds of food children eat. The quantity needs to be guarded far more than the quality. Where there seems an overweening desire for a particular dish, it may pretty generally be presumed that some element in it is required by the child's system, and it is better to gratify it even to what may seem an intemperate degree than to unduly restrain it. When the system is fully supplied with the constituent it needs, it will cease to turn greedily toward it.

Dr. Hall's injunction is, "never in sickness or health to force your children (or yourselves) to take one single mouthful of food or drink that they do not like." This is against very much of our common practice, and whether or not it be a fact that such a rule should have no exceptions, there can be no doubt that in general it is much safer than the more arbitrary method. It does not, by any means, sanction the giving of a sick child everything it does like, though even if this were done in minute quantities the danger probably would be less than stuffing it with that for which it has an aversion. In sickness there is often a morbid appetite, which craves more food than can safely be allowed, but a morbid appetite and a perverted one are different things. Most of us can recall occasions when some much craved but forbidden dish justified our instinct by proving really beneficial in spite of being surreptitiously obtained. "Begin by taking a little at a time of what is so urgently craved, and feel the way along to an amount which nature can bear."

The appetite is one of the least appreciated of nature's gifts to man. It is generally regarded in this work-a-day world as something to be either starved or stuffed—to be gotten rid of at all events with the least inconvenience possible. There are people who are not only not glad that they have been endowed with sound, healthy bodies, for which nature demands refreshments and replenishments, but they are actually ashamed to have it known that they are sustained in the usual manner. The reason of this we are at a loss to conceive. Everybody admires beauty, and there can be no true beauty without good health, and no good health without a regular and unvarying appetite.

We are disinclined to let appetite take any responsibility of itself. If we happen to consider it too delicate, we try to coax it, perhaps to stimulate it with highly-seasoned or fancifully prepared food. There are times when this may be necessary, as in the case of a person so debilitated as to depend for daily strength on what he eats. But, usually, the cajoling process is a mistake. If the appetite of an individual in fair bodily condition be occasionally slender, it is no cause for alarm, and it should be allowed to regulate itself. It may safely be considered nature's protest against some transgression, and it is wise not to attempt coercion.

At certain seasons, as in spring and summer, the appetite of even the robust is apt to fail, and the relish for meats and heavy food to wane. This is all right enough, for animal diet in warm weather heats the blood, tends to headaches, and is generally unwholesome, unless sparingly used. On the other hand, fresh vegetables, berries, fruit and bread are cooling, corrective and what the palate most craves. Don't be afraid to go without meat a month or so; and if you like, live purely on a vegetable regimen. We will warrant that you will lose no more strength than is common to the time, and that you will not suffer from protracted heat, as when dining on the regulation roast.

DIETING.

Dieting is usually considered to mean the same thing as a kind of starvation. The idea which the educated physician attaches to the term is a judicious regulation of the quantity and quality of the food, according to the circumstances of each case. A healthy man may diet

himself in order to keep well; an invalid may diet with a view to the recovery of his health; yet the things eaten by the two will widely differ in their nature, bulk and mode of preparation. A vast multitude are suffering hourly by the horrors of dyspepsia; no two are precisely alike in all points, since there is an endless variety of combinations as to age, sex, occupation, air, exercise, mode of eating, sleeping, constitution, temperament, &c. Yet dyspepsia is always brought on by over and irregular eating; it could be banished from the world in a generation, if the children were educated to eat moderately, regularly and slowly; the parents who do this will do their offspring a higher good than by leaving them large fortunes, which, in three cases out of four, foster idleness, gluttony and every thing evil. As the rich can get any thing to eat and drink when they want it, they, with indulged children, bring on dyspepsia by eating irregularly and without an appetite. The poor—those who have to work for a living—induce the horrible disease by eating too rapidly and at unseasonable hours; mainly by eating heartily at supper and going to bed within an hour or two afterward. In the heyday of youth and manly vigor there may not for a while be noticed any special ill effect from such a practice—in truth, it is at first inappreciable, but it is cumulative and impossible not to manifest itself in due time. Infinite Benevolence forgives a moral delinquency; but omnipotent as he is and loving towards all, it is not in the nature of his government of created things to work a miracle, to suspend a natural law, in order to shield one of his creatures from the legitimate effects of a violence offered the physical system by excesses in eating, drinking or exercise.

Perhaps hearty suppers make more dyspeptics than any or all other causes combined. If dinner is at noon, nothing should be taken for supper but a single cup of weak tea or other hot drink and a piece of stale bread and butter. After forty years of age, those who live indoors, sedentary persons—that is, all who do not work with their hands as laborers—would do better not to take any supper at all. Half the time the sedentary, who eat at noon, do not feel hungry at supper; especially if they see nothing on the table but bread and butter and tea. But nature is goaded on to act against her instincts in almost every family in the nation by “relishes” being placed on the supper-table, in the shape of chipped beef, salt fish, cake, preserves or other kinds of sweetmeat, and before the person is aware, a hearty meal has been taken, resulting in present uncomfortableness, in disturbed sleep, in a weary waking in the morning, bad taste in the mouth and little or no appetite for breakfast, all of which can be avoided by beginning early to eat habitually, according to the suggestions above made.

Eat food enough to give the stomach work to do. Many men and women eat too much, as we all know. But there are those who eat too little, and not a few of them either. College students, boarding themselves, house-keepers in straightened circumstances, dyspeptics, dreading the pains that follow digestion, often starve themselves. Taking the community through, men and women, old and young, it is probable that quite as many suffer from insufficient food, from the cravings of unsatisfied digestion, as from repletion. While some laborers go to rest “crammed with distressful bread,” many who work hard with the brain or the needle feel, when they

lie down, the gnawings of wretched hunger. Plenty of food is a first requisite for a healthy stomach.

Dr. Max von Pettenkofer disputes the rule laid down by so many physiologists, that so long as the body is able to perform its functions, even though suffering from hunger, to take more food is superfluous. Bichoff and Voit fully demonstrated, by their experiments on nutrition, that the result of a nourishment so restricted is an actual state of want, a continual famine, a condition incompatible, in the long run, with the normal conditions of life. The body, says Pettenkofer, has need of a certain well being—of a small excess of nourishment—in order to preserve its strength and vigor, and what just prevents death from hunger is not sufficient.

To starve ourselves as a cure for disease, is to be afflicted with two evils instead of one. The disease torments us on one side, and the remedy on the other.

Fasting is, at times, the best medicine; the means of removing incipient disease, and restoring to the body its usual healthful sensations. Howard and Franklin often fasted one day in the week; and Bonaparte, when his system was unstrung, omitted his wonted meal, and took exercise on horseback, as his only remedies.

Some persons eat themselves to death, others diet themselves to death. When a man is sick he is weak, and concludes that, as when he was well he ate heartily and was strong, if he now eats heartily he will become strong again. Well-meaning, but ignorant friends are of the same opinion, and their solicitations to eat become one of the greatest annoyances of a sensible invalid. Nature purposely takes away the appetite under such circumstances, and makes the very sight of food nauseating. A sick man is feeble; this feebleness extends to

every muscle of the body, and the stomach, being made up of a number of muscles, has its share of debility. It requires several hours of labor for the stomach to "work up" an ordinary meal; and to give it that amount of work to do, when it is already in an exhausted condition, is like giving a man, worn out by a hard day's work, a task which shall keep him laboring half the night.

Mothers are often much afraid that their daughters will hurt themselves by a little work, if they complain of "not feeling very well;" and yet if such daughters were to sit down to dinner and shovel in enough provender for an elephant or a plowman, it would be considered a good omen and the harbinger of convalescence. A reverse of such procedure would restore multitudes of ailing persons to permanent good health; namely, to eat very little for a few days; eat nothing but coarse bread and ripe fruits, and work about the house industriously; or, what is better exercise in the open air for the greater part of the day on horseback, in the garden, or walking through the woodland or over the hills for hours at a time. Objectless walks, and lazily lolling in carriages, are little better than nothing.

DIET AND HEALTH.

Tasso, the great Italian poet, author of "Jerusalem Delivered," died comparatively young, from a febrile disorder. His diet, so far as his peculiar inclinations were concerned, was not that which an intelligent physician of to-day would approve, for it consisted chiefly of sugar, sugared dishes and confectionery. His biographers reported him to have been troubled from time to

time with disorders which were evidently induced by indigestion, a deranged liver, and other like organic disturbances, which usually result from an excessively rich and highly seasoned diet.

Voltaire, as is well known, was extravagantly fond of coffee, and doubtless owed much of his inordinate nervous excitability to the use of that stimulant.

Schiller, the most popular poet of Germany, was but forty-six when he died. He was extremely addicted to eating ham—a decidedly unpoetic dish, and as ill adapted to the sedentary life of an author as it is unpoetical. An internal malady brought him to his early death; whether or not the pork he daily swallowed in the semi-indigestible shape of ham had aught to do with that malady, we have not been informed, but the presumption is fairly deducible from the phenomena of the disease.

Dr. Johnson, the heavy, sententious, and often caustic philosopher, possessed an inordinate dietetic propensity for tea. It doubtless roused to action much latent energy, which might otherwise have lain dormant, and at the same time contributed to his petulant manner when displeased.

In our every day life we meet men of fine talents and acknowledged literary or scientific abilities, whose usefulness is much impaired by their dietetic excesses. Many of them may not be conscious of the injury wrought by the highly seasoned meats and drinks of which they are so fond, to body and brain; and when indigestion, dyspepsia, headache, or neuralgia drive them groaning to the physician, they suddenly realize the gastronomic improprieties of which they are guilty, and whose penalties they now undergo.

Many a man goes from the breakfast table to his office

or counting-room, and soon after seating himself at the desk, finds it difficult to enter intelligently upon the business of the day because of heaviness in the head and a resultant confusion of ideas. He does not imagine that the incipient congestion of the brain under which he labors is due to the two or three cups of coffee, strong and hot, which he poured down his throat with such infinite relish.

We are a greasy people; from the pork-fat of New England to the ham-fat of the South, we wallow in greasy food. This becomes rancid on the stomach, and superinduces what Dr. Urquhart pronounced the sum of all diseases—dyspepsia. We drink tea that would frighten a Chinaman, and coffee that would serve as an antidote to opium. We pour down doses of alcoholic fluids which eat into the coatings of our intestines, and destroy the gastric juices. We go to bed overtaken, body and mind, sleep with sluggish blood in a state of stagnation, and get up only when the broad sun is staring in angrily at us through our bed-room windows. We are reckless in our pursuit of pleasure; we strain our mental powers to their utmost tension; and end, old men and women before our time, or die, or fill a cell in an insane asylum.

In Scotland whole families of working people make their entire breakfast on oatmeal porridge, costing but a few cents. Wheaten grits, crushed wheat, Graham bread have all the elements needed to give warmth and strength to the body, and would keep it in health and vigor if nothing else were eaten for weeks and months together. In this way the cost of eating could be easily and healthfully reduced to only a few cents a day, and the person never know the pangs of hunger.

Very many persons in Ireland live mainly on potatoes, which have but twenty-five per cent. of nutriment, the remainder being water, and they would make a comparatively cheap diet.

It has been stated that nearly half the globe is mainly fed on rice—the millions of China and Japan make it their chief article of subsistence.

If a man sits down and leisurely makes a full meal of potatoes, or boiled rice, or oatmeal porridge, or wheaten grits, or hominy, either one of them seasoned with well made gravy of hog's lard, a little flour, with a proper amount of pepper and salt, he will feel no more hunger half an hour afterwards, will have as much satiety, will have quite as much a feeling of satisfaction as to food, will be as much disinclined to eat, as if he had made a dinner on broiled chicken, roast beef, fried oysters, or porter house steak; all the difference is in the amount of pleasureableness experienced during the short period of its going down the throat; just as a thirsty man will feel quite as free from thirst in five minutes, from drinking a glass of spring water as a glass of soda—the only difference being in pleasureableness during the time of swallowing.

The French workman is up at early dawn. In fact everybody rises soon in France. There is more business done before ten o'clock in Paris than there is in London before eleven. There are two places where breakfast may be had—the *cremerie* and the soup shop. Some excellent coffee, with milk, cost less than 1-4d, and the bread with butter 1d. For dinner the soup will cost 1 1-2d; the plate of meat 2d; half a bottle of wholesome wine 4d, or a quarter of a bottle 2d, or a pint of beer or milk 2d, and all of really good quality. In many

places they give soup, a piece of mutton or *beef a la mode*, bread, and half a bottle of wine for 60 centimes, or about 11 cents of our money.

English farm laborers consume 16 ounces of meat per man weekly. Scotch about the same amount, and Welch laborers but 2 1-2 ounces per adult weekly.

The diet of miners in Belgium, according to official reports, consists of 2 pounds of bread per day, about 2 ounces of butter, 1 ounce of coffee and chicory mixed, and in the evening potatoes and other vegetables to an amount not exceeding 1 1-2 pounds. They have meat on Sundays and holidays, but during the week they drink neither beer nor other fermented liquor. Coffee is their only beverage, with about ten per cent. of milk added. This, with the bread and butter, is all that is taken until the vegetable meal of the evening. This diet is less nutritious even than that of the monks of La Trappe, and is, in fact, below what is generally considered as essential to life and health; yet these workmen are hardy and healthy. The coffee contains but three per cent. of the nutriment in their daily rations, but, since it is pretty well established that this beverage diminishes the waste of the tissues, it may be a very important item in this remarkably meagre diet.

The difference between the diet of the ancients and that of us moderns, is very striking. The ancient Greeks and Romans used no alcoholic liquor, it being unknown to them; no coffee, nor tea, nor chocolate, nor sugar, nor even butter; for Galen informs us he had seen butter but once in his life. They were ignorant of the greater number of our tropical spices, as clove, nutmeg, mace, ginger, Jamaica pepper, curry, pimento. They used neither buckwheat nor French beans, nor spinach, nor sago,

tapioca, salep, arrow-root, nor potato or its varieties; nor even the common, but a sort of marsh-grown bean; nor many of our fruits, as the orange, tamarind, nor American maize. On the other hand, they ate substances which we now neglect—the mallow, the herb ox-tongue, the sweet acorn, the lupin. They liked the flesh of wild asses, of little dogs, of the dormouse, of the fox, of the bear. They ate the flesh of paroquets and other rare birds, and of lizards. They were fond of a great many fish, and shell fish, which we now hold in no esteem. They employed as seasoning rue and assafoetida.

As a rule, the savages eat less than the civilized. They may gorge themselves at long intervals, like the Bushman and Hottentots of South Africa, and the Greenlanders, and Esquimaux; but between these seasons of hideous gluttony many days often intervene. The average quantity of nutriment that most of the barbarous tribes consume is unquestionably less than that of the civilized, who take three regular meals daily. Indeed, most of the wild races lead a very precarious existence in regard to food. They subsist on snails, bugs, clay, insipid or bitter fruit, unsightly worms, and other substances equally abominable, which are neither nutritious nor agreeable.

Dr. Beard says: The ruling people of the world, who have from time to time shaped the destinies of humanity, have always, so far as can be ascertained, been liberal feeders. Among modern nations the greatest eaters are the English, the Germans, the French and the Americans—the ruling people of our civilization. The diet of the Spaniards and Italians is notably less substantial than that of the English and Germans, just as their brains are less active and original. The Americans are,

on the average, the greatest eaters in the world. Said Carlyle to Emerson,—“The best thing I know of that country is, that in it a man can have meat for his labor.”

The rice-eating Hindoos at one time took a better position among the nations than they do now, but neither in war nor in peace did they ever attain to anything of the standard of Europe or America. The Japanese have for ages been a fish, rather than a flesh-eating race, and all travelers agree that they have rather receded than advanced from the low standard of civilization to which they had attained a thousand years ago. The Chinese are as peaceable and inoffensive as we would suppose a nation of rice-eaters might necessarily be. They have developed, it is true, a genius for mechanical arts, and a quiet skill in unique handicraft; but of those broad purposes of action, that made Rome the mistress of the world, that now compel the eyes of the planet to turn to France, England and America, China has known nothing for the long centuries of her history. And here I may say, that in estimating the relative position of any nation in history, we do not consider alone its literature, nor its commerce, nor its mechanical genius, nor its religion, nor its system of education, nor its success in war and legislation, nor its specimens of individual greatness, but of all these combined. Careless observers and thinkers, on visiting for the first time the coasts of China and Japan, are sometimes so powerfully impressed with the originality and patience and mechanical genius of the people, that they at once accord to those nations a higher relative position than they really deserve, or have ever been awarded by the common voice of mankind.

The diet of the nations of Africa, and of most of the islands of the sea, is usually quite meagre, and has too

little variety to afford the best kind of nutrition. The inhabitants of some districts of South America eat clay; certain negro tribes feed on ants; the savages of a large portion of the tropical regions subsist almost exclusively on fruits; the Greenlanders gorge themselves on train oil and blubber; and the peasant of the Apennines oftentimes makes his entire meals on roasted chestnuts; the lower classes of Europe everywhere regard meat as a luxury and not as a daily necessity, and the potatoes and sour milk of the Irish have become proverbial. But what have the natives of South America, the savages of Africa, the stupid Greenlander, the peasantry of Europe, or the well-fed thinkers of America?

Even the experienced trainers of the prize-ring cannot decide what is the best food for training men up to their greatest powers of endurance. They have a prejudice in favor of mutton chops and underdone beef-steaks; but it is by no means sure that this is the best. The Roman soldiers who conquered the world, and built roads from Lisbon to Constantinople, and who were all trained athletes, marching under a weight of armor and luggage that few men in our day could carry, lived on coarse brown wheat or barley bread, which they dipped in sour wine. In our day the Spanish peasants are among the strongest and most agile men in the world. He will work all day in a copper mine, or in the wine press, under a hot sun, and then dance half the night to the music of a guitar. What does he live on? A piece of black-bread, an onion—perhaps half a water-melon. You may see him dipping his piece of bread into some sour vinegar made hot with pepper and garlic, and then he is happy. Sometimes he gets a draught of harsh, sour wine, but not strong. All the strong wine

is sent to England. The Smyrna porter walks off with a load of eight hundred weight. His only food, day after day, is a little fruit—a handful of dates, a few figs, bunch of grapes, or some olives. He eats no beef, pork or mutton. His whole food does not cost him a penny a day. The Coolie, living on his rice, can out-work the negro fed on bacon. The Arab, living on rice and dates, has the most tremendous muscular force, and the greatest powers of endurance may be nourished upon a very moderate diet.

Some men, if they had but good physique, would rise to the highest positions; others, who have the physique—the bodily health—rise to the highest places, although their powers of mind are very inferior. It is not Utopian to say that every one might preserve his healthfulness and youthfulness of mind and body through life, if he realized how he ought to live, what to eat, drink, and avoid. Men (and women too) might remain vigorous and vivacious, equal to the emergencies of life, and ready to face its trials with the “child heart,” not withered, but “grown into the man’s.” It must be acknowledged that the great mass of the people of large cities have fallen into a feeble condition, which, though perhaps it is not disease, is not health. It is a low state of vitality, of physical power, of mental energy, and even of moral strength. Ability to cope with and surmount obstacles, the characteristic of the Anglo-Saxon, cannot exist without a firmer and more sturdy and stalwart development than can be acquired in a damp cellar on a diet of bread and tea. What we desire, and most earnestly strive to attain, is a race of men, not poor, puny, wizened creatures dragging on a miserable half-existence, but men and women with vitality, with energy, and “pluck.”

The effects of food upon the passions and feelings are thus poetically rendered by Prior :

“Observe the various operations
Of food and drink in several nations.
Was ever Tartar fierce and cruel
Upon the strength of water gruel ?
But who shall stand his rage and force,
If first he rides, then eats his horse.
Salads, and eggs, and lighter fare,
Tune the Italian spark’s guitar ;
And if I take Don Congreve right,
Pudding and Beef make Britons fight.”

MASTICATION OF FOOD.

It is a common, but a true saying, that “food well-chewed is half-digested.” Mastication prepares the food for solution in the stomach, just as mechanical division out of the body renders substances more easily soluble. The whole digestive process is deranged if we neglect the mastication of our food ; this neglect is the most frequent cause of dyspepsia. There is no habit so destructive to the digestive powers, as our, we might almost say, “national” habit of swallowing our food without chewing it, like so many anacondas. Go into the common restaurants in our large cities, where business men snatch a few moments from their toil for money, to cram their stomachs with half-chewed meat and bolted vegetables, pies, whose contents are dyspepsias, and puddings, whose elements are the pains of indigestion, flavored by tobacco, and perhaps by alcoholic stimulus,—there you will see the animals fed at any hour from twelve to four, continually thronging around the tables at which they remain from ten to twenty minutes, not having time even to

take off their hats, and literally shoveling in their food with their knives faster than the mouth can comfortably dispose of it. At such times we are prepared to exclaim with Henry Ward Beecher: "The mouth is but a mill. Therein goes perpetual grists for grinding." The eye and the ear have a certain nobleness, dealing as they do with the light of heaven and the music in the air; "but the mouth is a strange aperture, into which men cast untold substance, and it hath never been filled."

If we do not chew our food, we lose the benefit of its mixture with the saliva, which begins the process of digestion in the mouth, acting on the starchy particles and facilitating their conversion into sugar, which the stomach cannot do. The size and number of the salivary glands indicate the importance of their secretion; the principal ones are the parotid glands, in front of the ear, so often enlarged in mumps, opening into the mouth near the middle of the cheeks; others are situated under the tongue and lower jaw, their ducts opening also into the mouth. The saliva is a transparent, slightly viscid fluid, usually alkaline in character; the quantity supplied in a day for digestive purposes is nearly three pints; under the influence of tobacco and certain medicines, the amount is largely increased, and its properties considerably changed. At mealtimes it is poured out abundantly, especially if the food is of a savory quality; it is well known that even the idea of food to a hungry person will "make his mouth water," or in other words, increase the amount of saliva poured out. It is greatly influenced by mental emotions, and is very nearly suppressed under great fear and anxiety. In animals it sometimes becomes exceedingly acrid and poisonous, as in hydrophobia, its introduction into the blood being as surely, though not

as speedily, nor in the same way, fatal as the venom of poisonous serpents.

Food should pass into the stomach in a finely divided state. The rapidity with which digestion is performed depends upon various circumstances; strong emotion, as anger or grief, will retard it; moderate exercise hastens it, and thus the state both of body and mind, influences it; a usual meal is generally digested in a healthy person in from three to five hours. A mixture of food is not objectionable, except that it encourages the appetite, and often leads to a greater consumption than needful.

Sometimes when I see men bolting down their food in such hot haste I feel like exclaiming, what a pity that man, who ought to be the wisest of God's creatures, should thus violate every dictate of wisdom and organic law, and poison his system by suffering, until he becomes a poor, broken-hearted dyspeptic! Let your present sufferings teach you how to eat in future; or if you are too idiotic to learn, sin and suffer on, and be miserable still; and let it be forever remembered that no man does or can suffer, until, or unless he has sinned.

"But," it is objected, "I have tried my utmost to refrain from fast eating, and find myself unable to do so." Then try the rule involved in the following. You mistake, by supposing that you are to restrain this gormandizing propensity by force of will. You take the wrong means. This so desirable an end is to be attained, first, by dismissing all thoughts of business from your mind, when you sit down at the table, sitting down just to enjoy the luxury of the present hour, dismissing every thing else—put yourself into a calm state, and stopping short, eat not a mouthful until your flurried fever has cooled down. You do not feed your horses when in a period of excite-

ment—then why feed yourself when over-excited, either by business or muscular labor? Cool off first, if it takes you an hour; then begin by taking small mouthfuls, the size only of a bean or chestnut, and, smacking your lips over the flavor, and tasting how good it is, and stopping to enjoy each mouthful; and this rich taste of your food will, of itself, draw off your mind from your business-haste; whereas, if you sit down in your hurried state of mind and do not direct your attention to flavor, no earthly power can prevent your eating too fast.

This rule inadvertently but effectually contains another to prevent over eating, namely:—Stop eating as soon as your food has lost its rich, fine, luscious flavor—that is, as soon as you have to coax appetite by putting on rich gravies, condiments, &c.—a rule directly in the teeth of that very bad dietic habit of eating pastries, pies, rich puddings, &c. Lastly—always begin your meal on the daintiest article; partly because, after appetite has been once sated to rekindle it by rich food is doubly bad: first on account of the food, and secondly because of its being eaten when the stomach is already overloaded; a remark which must strike the *common sense* of every one who has this scarce article, at least an article seldom brought to the table.

The common vice of our people, in both town and country, among old and young, rich and poor, is rapid eating. The stomach, like a dark bottle to be filled with a funnel, gets full and overruns before one knows it. There are two ill effects from hasty feeding; the food expands considerably, both by increased warmth and by its being divided and liquefied, so that if the stomach is not full when one ceases to eat, it will be full enough in a very few minutes by the heating and liquefying process.

If a meal is eaten with great deliberation, this expanding, heating, liquefying process begins and keeps pace with the meal, and the man does not feel like a gorged anaconda. The English people thus eat as a nation; they give themselves time to enjoy their food, to experience the pleasure of its taste, and make eating a gratification; while we Americans, in multitudes of cases, look at it as a thing to be gotten through with—as a task which has to be performed, and the quicker the better.

We should remember that swallowing one's food is not the first process necessary to healthy digestion. If we had gizzards we might swallow our food whole as ducks do; but instead of gizzards, we have teeth, (some of us), and are commanded to use them in grinding food for the stomach; but if we compel the stomach to do both its own work and that of the teeth, it will soon give signs of debility and disease in the shape of acidity, headaches, sense of weight over the whole man, irritable temper, despondency, etc. Our farmers seldom spend more than ten or fifteen minutes at a meal, and then go immediately to the field and engage in the most laborious work. At least one hour should be spent after each meal in repose of both body and mind. This will allow the stomach to collect to itself, so to speak, a due quantity of blood, out of which to elaborate the gastric juice. Violent exercise calls the blood to other parts of the body, and thus robs the stomach.

Eating too fast generally involves eating too much—more than is needed for the support and nutrition of the body—and the reason for this is, that the organs of taste, which are our guide in this matter, are not allowed sufficient voice; they are not allowed time to take cognizance of the presence of food ere it is pushed past them into

the recesses of the stomach. Thirty minutes should be spent at each meal, and spent, too, in chewing the food a good portion of the time, and not in continued putting in and swallowing, but in a pleasant chat and laugh, instead of the continuance of the intense nervous pressure of the office or the library. If you lay out to spend thirty minutes in this way at your meals, you may rest assured you will never eat too much, and what you do eat will be in the best condition for appropriation to the needs of your system. You will be healthier in body, happier in mind, and more vigorous of brain—for there are few things that so clog the brain as a meal of half-eaten food put into the stomach.

Hall's Journal says a sixpenny sandwich, eaten leisurely in the cars, is better for you than a dollar dinner, bolted at a "station."

PLEASURE IN EATING SLOWLY.

We deduce then that we ought to eat leisurely and enjoy it; this can never be done in a hurry, but is almost sure to be done if we do not hurry; it would be difficult to eat slowly and not enjoy it, with the exquisite apparatus of tongue and mouth with which to distinguish pleasant and savory tastes from others; we are certain to enjoy the good things when we get them and have time to taste them. Beside the better health from taking time at meals the greater enjoyment itself is no mean consideration. We believe it was intended by a good Providence that while we eat to live we should enjoy what we eat, and should not find the doing of it an irksome task. We almost envy those foreigners who come among us and eat according to our notion of propriety.

Observe for example one such as he sits at his dinner, then he talks, and jokes and laughs, no sourness, nothing glum or morose; he takes comfort then, and you might as well try to stop his usual sleep at night as to make him hurry; and he is hale, hearty and robust. This is the rule with all foreigners who are most portly and rotund; there is much truth at the bottom of the saying, "laugh and grow fat."

But Americans—too many—lean, lank, and dyspeptic, with sour stomachs, themselves sour as well, swallow their food just as fast as they can, and with all the care, schemes and connivings of business pressing upon them; they speak little while dining, smile less, and devote themselves heartily to the enjoyment and digestion of the dinner hardly at all. Those who have health, and care less about keeping it, whose aim in life is money or to outstrip others in some strife, may eat in a machine process way with our permission; but to those dyspeptics whom we have been talking to, and those who would keep their vigor when they have got it, with the other reforms we have urged in these pages, we would insist upon this; when you eat, do it, do not bolt your food; when you go to your repast, lay all else aside; make that your business, take time, call your friends around you and have a pleasant season with them; make the dinner hour one of pleasure for the whole household; for this, reserve all the pleasant anecdotes; for this, the sweetest and best thoughts and words, and let it be to the strife and hatred of business a soothing balm which shall make you rise from the table refreshed, not alone in body but in mind; the refreshing of each will renew the other, and the reward in days and increase of happiness will astonish, while it gratifies those who try it.

Many persons have been choked to death by attempting to swallow food without chewing it sufficiently. Food in the stomach, surrounded with its juices, is like pieces of ice in a glass of water; for as the ice melts from without inwards, so the stomach juices dissolve the bits of food from without inwards; and as the smaller the pieces of ice, the sooner they are melted, so the smaller the bits of food, the sooner they are dissolved, and pass out of the stomach, to be distributed to the system, giving it life, and warmth, and vigor. But if the pieces of food are large, they begin to rot before they are melted, causing heaviness, belching, nausea, or other discomforts. These make bad blood, contaminating the breath, sending dullness to the head, depression to the spirits, and a universal unwellness, lasting sometimes for half a day or a whole night. Therefore eat slowly, with deliberation; talk a great deal at meals; cultivate cheerful conversation; and let any man or woman be considered a domestic enemy or pest, who says or does anything at the table calculated to cause a single unpleasant sensation in any one present; and for the same reason have sharp knives to cut up every piece of meat as fine as a pea; and taking at least half an hour for a joyous meal, you may snap your fingers at dyspepsia and its interminable retinue of horrible symptoms.

By all means talk at the table. We are aware that some few consider it proper to observe perfect silence while at table. We do not know how such a horrible custom originated, yet we have a few times been a guest at such tables, but hope never to be again. The table is just the very place to talk, and the meal hours should be among the pleasantest of the day. Don't talk business and discuss what work shall be done after dinner, but

give the time to social chat. This should not prolong the meal inconveniently, but there should be enough of it to prevent the too common custom of rapid eating.

Talking at table is one of the very best digesters. There is no tonic known to equal it, as it is of the kind calculated to promote hilarity and good feeling generally. Most parents are prone to prohibit their children from laughing and talking at the table; it is unphysiological; it is cruelty. Joyousness promotes the circulation of the blood, enlivens it, invigorates it, sends it tingling to the remotest part of the system, carrying with it animation, vigor, and life. The louder the little ones laugh, the better; for then they eat less in a given time, consequently chew their food more thoroughly. Discard controversy at the dining-table. Discourage all subjects which invite political or religious rancor. Let every topic introduced be calculated to instruct, to interest, or amuse. Do not let the mind run on business, or previous mishaps, or past disappointments. Never tell bad news at the table, nor for an hour before. Let everything you have to communicate be, if possible, of a glad-some, joyous, hilarious character, calculated to bring out pleasant remarks or agreeable associations. On the other hand never administer a reproof at a social board to either servant or child; find fault with nothing; speak unkindly to no one. If remarks are made of the absent, let them contain some word of commendation, which, if repeated in their hearing afterward, will kindle kindly feelings; and thus will thoughts of the family table come across the memory in after years, when we have been scattered and some laid in their final resting place, and bring with them a sweetness of opinion which makes it a pleasure to dwell upon.

Let all troublesome topics be avoided at meals. Do not dwell upon the difficulties of business, the delinquencies of domestics, or discipline the children at the dinner table, for a cheerful spirit not only gives relish for food, but a good start at digesting the same. Shakespeare says: "Unquiet meals make ill digestions." If you would enjoy your meals, be good natured. An angry man can't tell whether he is eating boiled cabbage or stewed umbrellas. It is a well established clinical fact that cheerful society at meals greatly aids digestion. The sympathetic influence which exists between the stomach and brain attest the truth of the assertion. The rule of silence during meals, enjoined at many seminaries of learning, has recently been the subject of condemnation in an essay read before the New York Medical Society.

However the diet may be regulated, a few simple rules as to eating should always be observed. 1. That, while a spare or low diet is seldom either harmless or necessary, the stomach should never be filled to an extent sufficient to cause any sensation of uneasy fullness. 2. That eating should always be sufficiently slow to admit of the thorough mastication of food. 3. That solid food should not be taken with much liquid, it being better to drink freely between the meals. And, 4. That neither mind nor body should ever be actively exercised very soon after a full meal. If these simple rules were attended to, and, at the same time, a sufficient amount of exercise could be taken, pure air breathed, and regular habits of life adopted, we should hear no more from the thousands of groaning dyspeptics, who go about crying for relief from their agonies.

HOW MUCH SHALL WE EAT.

Sir James Clarke thought that one of the most fruitful sources of consumption was excessive eating. He says: "By a too stimulating diet the stomach becomes disordered, the secretions impaired, the circulation unbalanced, the skin dry and harsh, and often, as a consequence, tuberculous disease results." An eminent American author affirms that "where all the arts of cookery are brought into requisition to tempt the appetite, it not unfrequently produces consumption." And again, "superabundant and exciting food produces a morbid condition of the body, and derangement of its vitality. Children overfed are never healthy. Their excessive fullness and redness of face, though often exhibited by fond parents with pride, indicates an unhealthy condition. If there is the least consumptive taint, such feeding hastens it into activity." Again he says, "It is a false notion that the scrofulous and tuberculous require high feeding. This often develops the very evil it is designed to remedy." Dr. Hunt declares: "Our own nation is proverbial for gormandizing, which is already beginning to deteriorate the energies of the American people." Dr. Muzzy says; "Much feeding is likely to be followed by disease." Lola Montez declares that "the ordinary fare of a fashionable lady is sufficient to destroy the brightest and smoothest skin." Dr. Phillips and Dr. Paris recommend that "the dyspeptic should carefully attend to the first feeling of satiety." Professor Hitchcock advises that we should eat only one dish, or, as he explains it afterward, "one course." The celebrated Dr. Johnson offers the following on this point: "Whenever a meal is followed by an

inaptitude for mental or corporeal exertion, we have transgressed the rules of health and are laying the foundation for disease. The famous Dr. Cheyne says: "If any man has eaten or drank so much as renders him unfit for the duties and studies of his profession, he has over-eaten."

It is certain that over-feeding as well as over-drinking is a great evil, and produces its yearly hecatombs of victims who are looked upon as innocent sufferers, while their colleagues, the over-drinkers, are severely dealt with in respectable society. Thus writes a recent medical authority. He goes on to say that the tendency to degeneration of muscular and other tissues is much on the increase. The disease quietly gains ground, though the victim seems the picture of health to the uninitiated. It is one of the causes of the increase of sudden deaths. Rich living and fatty meats, with little exercise, do their work unsuspected, and produce as much disease as any of the recognized causes of typhoid and other maladies. These considerations are certainly worth heeding, when one sits down to dinner. But our stern medical monitor attends us to market also. All men should learn that a good eater should also be a good worker if he intends to remain healthy, and that the rule applies to oxen as well as to men. It may be seriously asked whether the consumption of the meat of over-fed animals is not also an evil? The answer must be—yes. Such food must tell upon the constitution of those living upon it. It lays the foundation of many evils in man's frame, probably producing many of those gastric disturbances which affect many abstemious and regular livers, who "wonder why such mutton and such beef could have disagreed with them."

Who shall decide when doctors disagree? Sound practitioners tell us that fat and tender meats are most nutritious, as they are most palatable. Of course, if one "over-feeds" he suffers in consequence, though his over-packing of the stomach be done with potatoes and salt. Moderation is the safe guide—not, however, to the ascetic regulation of rising from the table hungry. Whoever does that without necessity thinks more of his meat than even the over-feeder. The man may be presumed to be in the best condition, who goes to dinner when the hour comes, without having longed impatiently for the dinner-bell; and who goes from dinner without any special recollection of, half an hour afterward, what he has eaten, or whether he has eaten at all or not. Whenever the matter of food becomes one of thought and concern, whether that thought be the longing of the epicure or the fussiness of the dietarian, eating and drinking have assumed an undue importance. Whether men gormandize, looking chiefly for quantity, or pick here a little and there a little; piling up an over-sufficiency of delicate mouthfuls, or eat by ounce measure and under protest, in either case the mere act of feeding takes too much thought. Common sense is the best guide, and common caution should prescribe what one should eat and how much, and that, too, without making every meal the subject of a hygienic thesis. Two things may be taken for granted, that most people who can command the things they like *are* over-fed, and few people, male or female, of their own free will take exercise sufficient for their comfort. Excess in eating prompts or demands excess in drinking. Even water may be over-indulged in, and, as to tea and coffee, they are with very many people too freely poured down, to the detriment of diges-

tion. The main thing to be remembered is, that disease originates as much from over-feeding as over-drinking, and that the close atmosphere of a house is not the place to recuperate the over-fed.

Great eaters never live long. A voracious appetite, so far from being a sign of health, is a certain indication of disease. Some dyspeptics are always hungry; feel best when they are eating, but as soon as they have eaten they enter torments, so distressing in their nature, as to make the unhappy victim wish for death. The appetite for health is that which inclines to eat moderately, when eating time comes and which, when satisfied, leaves no unpleasant reminders. Multitudes measure their health by the amount they can eat; and of any ten persons, nine are gratified at an increase of weight, as if mere bulk were an index of health; when, in reality, any excess of fatness is, in proportion, decisive proof of existing disease; showing that the absorbents of the system are too weak to discharge their duty; and the tendency to fatness, to obesity, increases, until existence is a burden, and sudden death closes the history. Particular inquiry will almost unvaryingly elicit the fact, that a fat person, however rubicund and jolly, is never well; and yet they are envied.

While great eaters never live to an old age, and are never, for a single day, without some "symptom," some feeling sufficiently disagreeable to attract the mind's attention unpleasantly, small eaters, those who eat regularly of plain food, usually have no "spare flesh," are wiry and enduring, and live to an active old age. Remarkable exemplifications of these statements are found in the lives of centenarians of a past age. Galen, one of the most distinguished physicians among the ancients,

lived very sparingly after the age of twenty-eight, and died in his hundred and fortieth year. Kentigern, who never tasted spirits or wine, and worked hard all his life, reached a hundred and eighty-five years. Jenkins, a poor Yorkshire fisherman, who lived on the coarsest diet, was one hundred and sixty-nine years old when he died. Old Parr lived to a hundred and fifty-three; his diet being milk, cheese, whey, small beer, and coarse bread. The favorite diet of Henry Francisco, who lived to one hundred and forty, was tea, bread and butter, and baked apples. Ephraim Pratt, of Shutesbury, Mass., who died aged one hundred and seventeen, lived chiefly on milk, and even that in small quantity; his son Michael, by similar means, lived to be a hundred and three years old. Father Cull, a Methodist clergyman, died at the age of a hundred and five, the main diet of his life having been salted swine's flesh (bacon) and bread made of Indian meal. From these statements, nine general readers out of ten will jump to the conclusion that milk is "healthy," as are baked apples and bacon. These conclusions do not legitimately follow. The only inference that can be safely drawn, is from the only fact running through all these cases—that plain food and a life of steady labor tend to a great age. As to the healthfulness and life-protracting qualities of any article of diet named, nothing can be inferred, for no two of the men lived on the same kind of food; all that can be rationally and safely said is, either that they lived so long in spite of the quality of the food they ate, or that their instinct called for a particular kind of food; and the gratification of that instinct, instead of its perversion, with a life of steady labor, directly caused healthfulness and great length of days. We must not expect to live long by

doing *any one thing* which an old man did, and omit all others, but by doing *all* he did; that is, work steadily, as well as eat mainly a particular dish.

Nearly all our hard thinkers are in some form gluttons. To be a glutton, a man need not necessarily eat too much food. He may only need to eat at improper hours, or to eat food which is unhealthfully cooked, or, while eating moderately as compared with others, to eat more than his stomach can digest, producing thereby uneasiness in the bowels, fullness of head, twinges of pain in the legs and feet, sharp flashes of electric light through the eyes, catarrh, ringing through the ears, sleeplessness, fretfulness, despondency, indisposition to society, to demonstrate that he is gluttonous. When added to inordinate or improper eating one comes to chew or smoke tobacco, or to drink moderately, yet every day, of some vinous, brewed, or distilled liquor, then doubly certain is it that he is gluttonous.

Over-work of brain very seldom exists. Over-taxation of stomach is very common with our thinking men. As brain and stomach are organically very intimate, and so are functionally sympathetic, over-taxing the latter debilitates the former. Almost all disorders of the brain are the consequence or result of some other organ or organs; of none so frequently as the stomach. Never has a man died of apoplexy, who kept his stomach healthy. Never one of paralysis, unless by injuries caused by casualty. The stomach kept healthy, all the organs in the body will remain healthy. Food healthfully digested makes good blood; this makes life-force, and with plenty of this on hand, and realized, health is sure. With health, one is independent. I would rather have it than garnered gold. Pearls in a desert are not half as good to a

thirsty man as cold water. Stocks and bonds are not of par value to a nervous dyspeptic. Existence ought to be sweet, and life that is cultured should be very precious to him that holds it as his own. Whoever will eat to live instead of living to eat, will find himself able to work hard, stand the rack of thought, and live to old age to enjoy the fruit of his hands.

Li Po Sai is a Chinese doctor who has made much money and fame in San Francisco, and this is the diagnosis of the case of an American gentleman who consulted him: "I think you too much dance, too much eat, too much fool round. If you dance, you no get better; too much eating no good; too much fooling round no good. Good bye."

A PEEP INTO A LIVING MAN'S STOMACH.

The case of Alexis St. Martin is one with which the public, and especially those who have given particular attention to the subject of physiology in connection with medical science, are already familiar. It is indeed a most extraordinary one—perhaps we might say, the most extraordinary one known in the annals of surgery. St. Martin is a Canadian of French descent. In the year 1825, when he was eighteen years old, and while employed in the service of the American Fur Co., in Canada, he was accidentally wounded by the discharge of a musket loaded with duck shot, as he calls it, but which must, we infer, have been about the size of buck shot. He informed us that he did not know or feel that he had been hit, but a moment afterwards he felt a cold chill, as if a pail of cold water had been dashed over him. The charge, entering laterally from behind, passed quite

through his body, tearing off the muscles, carrying away half of the sixth rib, lacerating the left lobe of the lungs as well as the diaphragm, perforating the stomach and exposing to view the pericardium, or covering of the heart! A portion of the lung, as large as a turkey's egg, lacerated and burnt, and just below this a portion of the stomach, protruded from the wound, the food at the same time passing from the orifice thus made in the stomach. This orifice has never healed, and through it the process of digestion can plainly be seen in the stomach. Dr. Beaumont, the surgeon who attended him, published some years ago, a volume made up from facts connected with this case, and entitled "Dr. Beaumont's Physiology and Experiments." This work embraced the observations and experiments on St. Martin, and may be said to be the foundation of nearly all the positive knowledge now possessed on the subject of digestion. In this book Dr. B. gives the particulars of the treatment of the case, and the singular recovery of the patient. Curiously and happily enough, by the adhesion of the sides of the protruded portions of the stomach to the *pleura costalis* and the edge of the external wound, a free exit was afforded to the contents of that organ, and effusion into the abdominal cavity was thus prevented and the man's life saved.

Probably not one man in a million, if wounded in a similar manner, would recover at all, while the chances against just such a direction and result of another accidental or even an intentional shot, would be so enormous as to defy computation, and almost to surpass belief. The case of St. Martin is probably the first, last, and only one of the kind the world will ever see; and the opportunities which it affords for the acquisition of positive

knowledge concerning the human stomach and digestive functions are of corresponding interest and value. Think of the idea of actually witnessing the process of digestion, and the assimilation of various foods in the interior of the stomach!

It was found that brandy taken upon an empty stomach (half an hour before dinner) has the effect to temporarily paralyse the process of digestion for a period of four hours. Moreover its influence upon the stomach, under the circumstances, is such as to prevent that organ from recovering its natural and healthy tone for thirty-six hours after the brandy is swallowed; when at the expiration of that time, its restoration to a healthy tone is indicated by the appearance of red patches on the internal coats of the stomach, from which minute drops of blood are seen to exude. (This is the result after a debauch.) Curiously enough, during this interval, appetite is not the least impaired, although the functions of digestion are greatly impeded. The immediate effect of the brandy is to induce upon the coats of the stomach a condition either of inflammation or congestion; the physicians were unable to agree, from appearances, which of the two conditions really existed in this case. If, however, the brandy be taken with the dinner or after it, the food prevents its direct contact with the coats of the stomach, and the result then is to facilitate the process of digestion, as has been frequently proved by observations, which show that food under these circumstances digests considerably quicker than it does without this stimulus. This, however, does not prove that brandy is beneficial as a regular concomitant of the dinner-table. It may well be questioned if it is the part of wisdom to make such regular and unceasing application of the whip and

spur to a horse that is disposed to do his best without the sharp stimulus: though there may be cases of weak stomachs where the very moderate use of pure brandy might prove advantageous. But the physicians who have watched the process going on in St. Martin's stomach, do not purpose to deal in theories; they are after bald, literal facts.

Another interesting discovery has been made by the observations of this man's stomach. In looking into the aperture left by the shot from the gun, the secret of the gastric juice has been distinctly seen. The theory of the existence of this curious digestive agent had long been held by the faculty, and was indeed so strongly sustained by reason and by circumstantial evidence, that it was regarded less as a theory than as an ascertained fact. It was not, however, until this case of St. Martin's occurred, that the doctors were enabled to know, from the positive evidence of their senses, that the so-called gastric juice was precisely what it had been supposed to be. It was never before actually seen, as it is never produced except as food, taken into the stomach, requires its presence to perform the work of digestion; and it is produced in exactly the quantity requisite for the work to be done. Thus, if a small amount of food be eaten, this gastric secretion is correspondingly small; and if the quantity of food is increased, the gastric juice is also increased in quantity. It exudes from the coats of the stomach, as sweat from the surface of the body, and is of a limpid clearness like water. It could be seen trickling down the inner coating of the stomach, and has, it is said, a slightly sweetish taste. In post-mortem examinations this singular agent is never found; and it was, as we are informed, never seen before this hole in the living man's

stomach exposed it to the curious eye of the investigator.

Another fact which we noted while watching the case of St. Martin may prove of some benefit to invalids, if not to persons in robust health. The time required to digest different kinds of food varies with the character of the food; and some articles, hitherto supposed to be particularly easy of digestion, are not found to be so by the experiments made with this case. Thus, the flesh of an old hen is more readily assimilated and more quickly disposed of than that of a tender chicken; and the same thing is true in regard to beef. The meat of a full grown ox or cow digests quicker than veal.

Hundreds of people have an idea that game and meat that has been kept until it has almost reached the verge of putrefaction, is more easily digested than fresh game or fresh beef. This belief has led to the taste that likes, or professes to like, what is called the game flavor in woodcock, venison, &c. But it is seen, in this case, that tainted meats or game require a longer time for digestion than fresh meats. By a curious process of the stomach, the tainted meat is seen to undergo a very effective cleansing before the work of digestion begins. It is rolled over and over, and re-passed from one portion of the stomach to the other, the subtile agencies of that interior laboratory all the while acting upon it and eliminating, particle by particle, the offensive portions, until all is clean and ready for the proper work of digestion to commence.

The interior of the stomach, contrary to the impression of many persons, is cleanly and not uninviting in its appearance. Its delicate pink coatings are as clean and perfect as all the rest of Nature's handiwork; and it

is not until the pampered and unnatural appetite of individuals has, by overloading it, and by eating and drinking improper things, rendered it weak and incapable of performing all the work thrust upon it, that the stomach, or rather its contents, become "foul."

Cooked (melted or drawn) butter, and the lard, used in "shortening" pie crust, is not digested at all. It is seen swimming upon the surface of the stomach in the form of yellow or light colored grease, and it finally passes off undigested. The skin of all fruits never digests, neither do the stones or "pits" of plums, cherries, &c. The vanilla seasoning of ice cream is found to act as an irritating substance upon the stomach, and it greatly retards digestion. In both of these respects, also, the coloring matter of candies are shown to be still worse. These facts are settled simply by looking into the stomach with the naked eye, and viewing all the processes or stages through which the different articles of food must pass in the act digestion.

Hot bread never digests! Bear this in mind, reader, if you are accustomed to eat the light and tempting biscuit at tea, or the warm loaf that looks so appetising upon your dinner-table. Hot bread never digests at all; after a long season of tumbling and working about the stomach, it will begin to ferment, and it will eventually be passed out of the stomach as an unwelcome tenant of that delicate organ, but never digests—never becomes assimilated to, or absorbed by the organs that appropriate nutrition to the body. It is, however, a first rate dyspepsia producer.

Chopped meat, moistened, and introduced through this bullet-hole into the man's stomach, is found to nourish him just as it would if taken at the mouth! All

that the "patient" requires in that case, is to be allowed to chew a piece of gum, (merely to satisfy the habit of chewing, we suppose,) and he gets along as if he had eaten his dinner; it is undoubtedly better, however, that the food should first be masticated, and this can only be done through the proper agency appointed for that purpose by nature.

Venison digests in an hour; cooked oysters in two hours and a half; raw oysters, (contrary to our previous impression,) three hours and a half; beef steak two hours and a half; fat pork four hours; lean pork a little more than three hours. Probably this rule would not apply to all persons; different articles of food are digested differently in different stomachs; but the general principle here illustrated undoubtedly holds good in the great majority of cases.

Mirthfulness, at and after a meal, facilitates digestion wonderfully. Take St. Martin to a theatre, for instance, after a hearty evening meal, and let him enjoy a good comedy—the result is astonishing; digestion is promoted to a surprising degree. "Laugh and grow fat," is an adage now seen to be founded upon a physiological truth.

But make this man suddenly angry, under the above circumstances, and presto! what a change! The whole process of digestion is at once arrested—brought to a sudden stop, as if by the stroke of an electric shock! and it does not again go on as well as before, until a considerable time after the emotion which caused the interruption has died away.

Water is the first thing taken up and absorbed by the stomach, and this must be done before food is acted upon, even if the water be taken subsequently to the food.

Eating and drinking freely, alternately, at meals as a habit, is not sanctioned by the revelation made through the bullet-hole in St. Martin's stomach.

Another bad practice is the habit of eating between meals at all hours. The custom, according to the disclosure here made, is a most pernicious one. Regularity, above all things, is to be observed, both in the quantity of food and time of eating it.

Black pepper is much worse for the stomach than red or Cayenne pepper; it inflames the coatings of the stomach.

A piece of meat tied to a string, has been introduced into the stomach through the orifice, and after the lapse of a certain time it has been pulled out again, and the progress of the digestive organs accurately noted. In this way corned beef, for instance, has been reduced to a mass of fine, delicate and even threads, after having been for some time subjected to the action of gastric juice.

Another queer disclosure is the action of the stomach in case of hunger, when the whole sack or bag known as the stomach is seen to roll and work about. If kept too long in this empty and restless condition, the action of the organ is weakened—the stomach loses a portion of its vital energy, and the digestion of food taken at that time is performed more slowly in consequence.

The stomach evidently requires rest, like the body, and receives injury if this is not allowed it; but it should not be long without food.

Anger has the effect to cause the bile to rush into the stomach in a stream. This has been observed with certainty in the case of St. Martin. When he has been suddenly enraged, while lying upon the table, the bile

has been seen to rush into the stomach, which was perfectly clear of it the instant before, and such a quantity as to admit of its being emptied out freely into a cup! simply by turning him over!

St. Martin, since he was wounded, has married, and become the father of seventeen children, five of whom, with his wife, are now living.

EFFECTS OF THIRST.

Many instances prove that hunger can be borne for several days before it causes death. If the fasting person drinks water, this time is considerably prolonged. While, on an average, man cannot live longer than a fortnight altogether without food; there was, in 1831, an instance at Toulouse of a convict who, preferring death by starvation to a public execution, survived for as many as 63 days on water alone. Similar cases prove that it is much more difficult to overcome thirst than hunger; and this is confirmed by daily experience. If it be alleged, on the other hand, that many persons drink exceedingly seldom, and that females especially can do without drinking for many days together, it must also be borne in mind that all food, even the driest, contains a great proportionate quantity of water. Upon this reception of water into the system all depends. The blood and most of the tissues, with all secretions and excretions, contains an abundant quantity of water, as an indispensable condition of their right composition and proper action. In the excretions of the skin and lungs, more than one-third of the weight of our food is daily lost in the form of water. To this a considerable quan-

tity of water must be added besides, voided in the urine. A deficient supply of water is, therefore, very soon felt—dry lips and cheeks, dryness of the tongue and throat, speedily betray the lack of that water of the mucus and saliva which ordinarily keeps the cavity of the mouth in a moist state. On the increase of thirst, the mucous membrane reddens and swells, and after a while the inflamed tongue cleaves to the roof of the mouth.

That disturbance of the general system known as raving thirst, is far more terrible than that of starvation, and for this reason: during abstinence from food, the organism can still live upon its own substance; but during the abstinence from liquid the organism has no such source of supply within itself. Men have been known to endure absolute privation of food for some weeks, but three days of absolute privation of drink, (unless in a moist atmosphere,) is, perhaps, the limit of endurance. Thirst is the most atrocious torture ever invented. It is that which most effectually tames animals. Mr. Astley, the famous (British) circus manager, when he had a refractory horse, always used thirst as the effective power of coercion, giving a little water for every act of obedience.

It may not be generally known that water, even salt water, imbibed through the skin, appeases thirst as well as fresh water taken inwardly. In illustration of this subject, we quote the following from a "Narrative of Captain Kennedy's Losing his Vessel and his Distresses Afterward," which was noticed in Dodsley's Annual Register for 1769: "I cannot conclude without making mention of the great advantage I received from soaking my clothes twice a day in salt water, and putting them on without wringing. It was considerable time before I

could make the people comply with this measure, although from seeing the good effect produced, they afterwards practiced it twice a day of their own accord. To this discovery I may, with justice, attribute the preservation of my own life and six other persons, who must have perished if it had not been put in use. The hint was first communicated to me from the perusal of a treatise written by Dr. Lind, the water absorbed through the pores of the skin producing in every respect the same effect as would have resulted from the moderate drinking of any liquid. The saline particles, however, which remained in our clothes, became incrustrated by the heat of the sun and that of our bodies, lacerating our skins, and being otherwise inconvenient; but we found that by washing out these particles, and frequently wetting our clothes without wringing, twice in the course of a day, the skin became well in a short time. After these operations we uniformly found that the violent drought went off, and the parched were cured in a few minutes after bathing and washing our clothes, and at the same time we found ourselves as much refreshed as if we had received some actual nourishment. Four persons in the boat who drank salt water went delirious and died; but those who avoided this and followed the above practice experienced no such symptoms."

The following table exhibits the proportion of water in some of the most common articles of food, as determined by some of the most scientific chemists; such as Guevin, Peligot, Prout, Liebig, Bousingalt, Playfair, Broude, Brœckman, Christison, Schlosberger, etc. The figures annexed to each article shows the number of pounds of water that is contained in 100 pounds of the substance, weighed in merchantable order and reduced

by drying at 212° to 230° Fahr., the reduction of weight by evaporation of course being water, though not all, as the whole can only be driven off by a much higher degree of heat. The importance of kiln drying grain for shipment is very apparent.

	lbs. 100ths.		lbs. 100ths.
Wheat.....	14-5	Chicken	75-0
Rye.....	16-6	Pigeon	76-0
Oats.....	20-8	Fresh Fish, Cod	79-0
Barley.....	13-2	Fresh Haddock	82-0
Indian Corn.....	18-0	Fresh Sole.....	79-0
Peas.....	16-0	Fresh Carp.....	80-1
Beans	14-11	Fresh Trout.....	80-5
Potatoes.....	75-9	White of Eggs.....	85-0
Turnips.....	92-5	Yolk of Eggs.....	53-77
Carrots.....	87-6	Cow's Milk, average.....	87-2
Beets.....	87-8	Goat's Milk.....	86-80
Jerusalem Artichoke.....	79-2	Human Milk.....	87-98
White Cabbage.....	92-3	Ewe's Milk	85-62
Fresh meat, average.....	75-0	German Black Bread.....	33-0
Lean Beef	74-0	Beef Tea	93-43
Lean Veal.....	78-0	Blood	80-0
Lean Mutton.....	76-0	Arrow Root.....	18-2
Lean Pork.....	78-3	Gum Arabic.....	17-6
Venison.....	76-9	Sugar Candy.....	10-53

DRINKING-WATER.

As regards drinking waters, the properties most to be desired are: the absence of putrescent organic matter; the absence of discoloration, due either to fine clay held in suspension, or to dissolved organic matter; softness; coolness. The nearer a spring is to the surface, the more likely it is to hold organic matters in solution; but wherever the drainage is good, the air which passes along with water through the porous soil almost completely decomposes the organic matter, or at any rate

makes it innocuous. If, therefore, spring-water has no bad smell, it may be considered as serviceable for drinking. This, however, is not to be taken as an absolute rule, for there are some waters without smell which are injurious. But a bad smell invariably indicates something wrong. On the other hand, there are some organic matters which are not injurious, though they may be unpleasant. In peaty districts, the water is more or less coffee-colored, owing to the presence of organic matters in solution; but these "are not directly injurious to health."

Concerning softness: this is a quality that depends entirely on the composition of the water. No perfectly pure water exists in nature. Even rain-water, which has undergone a kind of natural distillation, contains certain atmospheric impurities, which, though useful in an agricultural point of view, are undesirable in drinking-water.

Rain water dissolves mineral substances which are commonly supposed to be incapable of solution—limestone rock, for example. In limestone districts and in chalky regions, the water of wells and springs is almost invariably hard, because of the carbonate of lime therein contained in a state of solution. The drinking waters supplied to London contain from twenty to twenty-five grains of solid matter to the gallon, one of the solid matters being lime, and these waters are found serviceable for all ordinary purposes. In supplying water either to a town or to a private house, we should endeavor as much as possible to hit upon the sample which, while it is sufficiently pleasant to the taste, is also useful for the kitchen and laundry, for there are hard waters which are excellent for drinking purposes, and yet unfit for cooking and washing. A large amount of carbonate of lime

is by no means injurious to the health of man, and we have no evidence that sulphate of lime or gypsum, and other mineral matters that usually occur in drinking-waters, are deleterious. Hence, a water that is very hard may still be very palatable, and even be preferred, for drinking purposes, to a softer one which is less sparkling and bright, and more tasteless.

The quality of coolness, except in winter, depends of course on the depth under ground from which the water springs. Surface waters are always warm in summer. Uniform coolness has the further advantage of indicating a uniformity of composition. The reason of this is, that water of uniform temperature invariably has to descend through a dense mass of rock; and as it trickles slowly through the rock, it becomes saturated thoroughly with whatever it can dissolve; while water which finds its way into surface-wells, is liable to be altered in its composition by purely local circumstances.

Rain-water, beside containing gases in solution, becomes impregnated with many saline substances in its passage through the ground; and hence the water of springs and rivers always contains many ingredients. The purest spring-water is that which has passed through gravelly deposits, such as of granite, sandstone, quartz; because the component parts of those stony substances being insoluble, the water cannot take up much of them. In the same way the water of old wells is purer than that of new, because the long-continued action of the water has removed or gradually dissolved the soluble matters in the same passages through the ground to the well. "The matters generally contained in spring, well, and river water," says Mr. Reid, "are carbonate of lime, sulphate of lime, muriate of lime, sulphates of potash

and soda, muriate of soda, and sometimes a little magnesia. 'In rain-water,' says Dr. Murray, 'the muriates I have found generally to form the chief impregnation, while in spring-water the sulphates and carbonates are predominant, and in the former the alkalies, potash and soda, 'are in larger quantity, while the earths, particularly lime, are more abundant in the latter.''' It is in its combination with one or more of these salts that water becomes hard, chiefly with the sulphate of lime or gypsum, and the carbonate of lime or limestone. Water is said to be hard when it will not dissolve but decompose soap. Soft water, on the other hand, does not decompose, but combines easily with soap and dissolves it. Hard water is not so fit as soft for many culinary purposes, such as making tea and boiling vegetables. It is, therefore, of importance for you to know when water is in a hard or soft state. By placing a few thin slices of white soap in a clean tumbler of the water to be examined, its hardness will be indicated by white flakes or curdy particles around the soap, the effect of decomposition—the acids of the salts in the water combining with the alkali of the soap and leaving the fatty matter. A very small quantity of either of the salts enumerated above will render water hard. Water can dissolve 1-500 part of its weight of gypsum; but, according to Dr. Dalton, 1-1000 part is sufficient to render it hard; and Mr. Cavendish says that 1,200 grains of water containing carbonic acid will hold in solution 1 grain of limestone. Limestone is insoluble in pure water; but water containing carbonic acid in solution can dissolve it.

There is a popular prejudice that hard water is dangerous to the health, and on that account we are constantly warned by physicians to beware of it, but in

England one of the leading authorities on this subject, Dr. Letheby, after devoting many years to an investigation into the properties of the water introduced into English cities, and to a study of the sanitary reports on the subject, comes to the conclusion that moderately hard water is safer and more healthful than soft water. Hard water is not only clearer, colder, more free from air, and consequently more agreeable to the eye and to the taste than soft water, but is less likely to absorb organic substances, to sustain the life of zymotic organisms, or to exert solvent properties upon salts of iron or upon leaden conducting pipes. The lime salts exert a beneficial influence upon the animal economy, and even protect the system from dangerous outward influences. Dr. Wilson, of Edinburgh, has also collected much valuable material on the subject, and comes to the same conclusions as Dr. Letheby. He takes the ground that the human body requires for its nourishment and support a supply of certain mineral salts, among which carbonate and phosphate of lime play an important part in building up the compactness of the bones and in other functions. We usually obtain phosphate of lime in our animal and vegetable food, but not from the water we drink. Carbonate of lime, however, is not contained in adequate quantity in our solid food, but generally obtains in spring and well water.

According to Dr. Letheby, more of the French conscripts are rejected from the soft water districts, on account of the want of strength of muscle, than from the hard water districts, from which it is concluded that the calcareous matter is favorable to the formation of the tissues. Dr. Letheby further states that the mortality in England is greater, on an average, in places where soft

water is used, other circumstances being equal, than where the water is hard; and it is suggested that the sparkling hard waters of the limestone districts are relished not only because they are pleasant to the eye, but on account of some hygienic properties in the excess of carbonic acid they contain, and possibly because the percentage of lime acts medicinally upon the system. The doctor concludes by expressing his preference for the very slightly hard water of London over a softer quality, although reprehending the use of water containing an excess of mineral matters.

The general conclusion, however, seems to be that neither hard nor soft water appears to exercise any perceptible influence on the tables of mortality. Both are apparently equally wholesome as far as death-rate is concerned, though many painful diseases which are not fatal, are with reason believed to be aggravated by the use of hard water. While it is most conclusively shown that soft water is not injurious to the health, the economic benefits which attend its use are so striking and so great that happy indeed those people may consider themselves who have the advantage of soft water. The softening of hard water for manufacturing purposes is not difficult.

DRINKING TOO MUCH.

Drinking wine is a habit; so is drinking spirits, ale, cider, coffee and water. The last is thought a necessity; but to drink much is a habit. Some people drink little—not because their constitutions require less than others; it is their habit. These people never perspire so much as those who drink more. The more that it is drunk,

the more water passes away, or the system would suffer. As it is, the strain affects it. The skin, the kidneys, bowels, lungs, all are drawn upon. The result is, as may be naturally expected, exhaustion. For this reason, the man who drinks much water, particularly during the summer and in the hottest weather, is less able to endure fatigue. The water is of no benefit to him—that is, the excess. It must pass away, and this requires an effort of the system, which is the sweating process. Had he not used the excess of water, he would not have perspired so; it would not have been there for the system to expel. It is a habit to drink water so much; a false thirst is created. We should drink only what is needed. The habit of drinking more will soon be overcome, and the person will feel much stronger and more capable of bearing fatigue. In winter, little fluid is needed beyond what our food furnishes; in summer, some more, but not much.

Dr. Hall says: The longer one puts off drinking water in the morning, especially in summer, the less will he require during the day; if much is drunk during the forenoon the thirst often increases and a very unpleasant fullness is observed, in addition to a metallic taste in the mouth. The less water a man drinks the better for him, beyond a moderate amount. The more water a man drinks the more strength he has to expend in getting rid of it, for all the fluids taken into the system must be carried out—and as there is but little nourishment in water, tea, coffee, beer and the like, more strength is expended in conveying them out of the system than they impart to it. The more a man drinks the more he must perspire, either by lungs or through the skin; the more he perspires the more carbon is taken from the system;

but this carbon is necessary for nutrition, hence the less a man is nourished the less strength he has. The more liquids used the greater must be the amount of urination, but this detracts a proportional amount of albumen from the system, and it is the albumen in the food that strengthens us. Drinking water largely diminishes the strength in two ways, and yet many are under the impression that the more water swallowed the more thoroughly is the system "washed out." Thus, the less we drink at meals, the better for us. If the amount were limited to a single cup of hot tea or hot milk and water at each meal, an immeasurable good would result to all. Many persons have fallen into the practice of drinking several glasses of cold water or several cups of hot tea at meals, out of mere habit; all such will be greatly benefitted by breaking it up at once; it may be well to drink a little at each meal, and, perhaps, it will be found that in some cases it is better to take a single cup of hot tea at each meal than a glass of cold water, however pure.

The warm season will increase our thirst. Water, pure water, will be too thin for those who chew or smoke tobacco, and they will want something they can "taste"—something pungent, something bitter, tingling, biting. They find what they crave in whisky, with fusil oil in it, or other similar drinks. But to an appetite that is healthy, nothing is more grateful or reviving, when thirsty, than water.

"To the days of the aged it addeth length;
To the might of the strong it addeth strength;
It freshens the heart, it brightens the sight;
'Tis like quaffing a goblet of morning light."

But even this should be used temperately and in moderation. Many drink too much. Nor should it be

drank on a full stomach. The less we drink of tea, coffee or water with our meals the better. Very hot drinks are bad. We are liable to take cold on going out after partaking of hot drinks.

Prof. Silliman closed a course of Lectures, at the Smithsonian Institute, by giving the following excellent advice to young men: "If you wish for a clear mind, strong muscles, quiet nerves, and long life and power prolonged into old age, permit me to say, although I am not giving a temperance lecture, avoid all drinks but water, and mild infusions of that fluid: shun tobacco, and everything else that disturbs the normal state of the system; rely upon nutritious food and mild diluent drinks, of which water is the basis, and you will need nothing beyond these, except rest and the due regulation of all your powers, to give you long and happy and useful lives, and a serene evening at the close."

With regard to its power to make one sick, unless it is filled with some noxious agent directly poisonous, water taken in quantity sufficient to supply perspiration has no power to nauseate or induce the colic or summer complaint in any person who is well enough to work. This may be put down as a certainty; and if any one thinks he is made sick by water, he takes too much of it; he is using too much at once, or it is a bad quality, he may be sure.

There is no habit which is so disposed to grow upon one as that of drinking. Even water-drinking, apparently so harmless, becomes, with some people, a most pernicious habit; they cannot exert themselves in any way without drinking water; they are regularly in the habit of drinking many glasses of water daily between meals. This habit is an injurious one; it greatly weakens

the digestive power, hastens waste, and very probably tends to produce corpulency. Unfortunately, however, water-drinking is far less frequently a habit than beer-drinking, which, in quantities very far short of intoxication, is much more injurious. By water-drinking we dilute our tissues, by beer-drinking we contaminate them.

We often take large draughts of water simply because it is pleasant to the mouth and throat, when there is no need in the system for it—when, indeed, it does positive harm by its presence, and if we would all use self-control enough to be temperate, it would be much better for us.

A person who drinks water largely in the early part of a summer's day will be more troubled with thirst during the remainder of the day than if these cravings had been resisted for a few hours. The more water a man drinks in summer, the more he perspires, and after a certain point, perspiration becomes debilitating, and is then a cause of disease. When persons are feverish and thirsty beyond what is natural, indicated in some cases by a metallic taste in the mouth, especially after drinking water, or by a whitish appearance of the greater part of the surface of the tongue, one of the best "coolers," internal or external, is to take a lemon, cut off the top, sprinkle over it some loaf sugar, working it downward into the lemon with the spoon, and then suck it slowly, squeezing the lemon and adding more sugar as the acidity increases from being brought up from the lower point. Invalids with feverishness may take two or three lemons a day in this manner with the most marked benefit, manifested by a sense of coolness, comfort and invigoration. A lemon or two thus taken at "tea-time," as an entire substitute for the ordinary "supper" of

summer, would give many a man a comfortable night's sleep and an awaking of rest and invigoration, with an appetite for breakfast, to which they are strangers who will have their cup of tea or supper of "relish" and "cake," and berries or peaches and cream.

The lemon thus eaten was the great physical solace of Gen. Jackson in his last illness, which was consumption combined with dropsy. It loosened the cough and relieved him of much of that annoying hacking and hemming which attends diseases of the throat and lungs, many times more efficient, speedy and safe than any lozenges or "trochee" ever swallowed.

Drinking cold fluids, in a state of excessive heat, is extremely dangerous. The body should invariably be suffered to cool before cold draughts of water be taken, particularly when the transition is from an active to a passive state.

It is a very safe rule to wet your wrists before drinking cold water, if you are at all heated. The effect is immediate and grateful, and the danger of fatal results may be warded off by this simple precaution.

Improper drinking of water has killed thousands. There have been instances where thirsty armies, after long marches, have come to some river, when the men would lie down on their faces and quaff an inordinary quantity of water, with these results: some die almost instantly, others became crazy, and some staggered like drunken men. Avoid drinking water as much as possible while marching. When you feel dry, rinse the mouth with water, but do not swallow it. Drink only when resting, or before the word is given to march. Men, when heated, should not drink anything cold. In a high state of perspiration ice-water only aggravates thirst.

Tepid water, a little weak coffee or tea, lemonade, sweetened water, mixed with vinegar or ginger, or with a drop or two of spirits of ammonia, should alone be drunk. Drink slowly. Half a tumbler of water will suffice the thirstiest man in the world, if he *drinks by sips*. Take from twenty-five to one hundred sips, and swallow each time—it will quench thirst better than a quart drank in the usual manner. In fact it is almost impossible to get down a full glass of water taken in this manner.

Five-sixths of an animal body is made up of water. A man weighing two hundred may be dried into a mummy not weighing over about sixteen pounds, including bones of the skeleton. Water, therefore, is largely employed in giving form, flexibility and beautiful lines. Enough is taken in with food to meet all demands of the system. The precise quantity, and indeed quality, is regulated by a sense of thirst. But that vital sentinel may be corrupted by excessive indulgence. When simple water is taken, a morbid thirst never follows. If, however, stimulating fluids are swallowed, a morbid craving may be generated, which, if not restrained, may become an unsatisfied passion, to the positive injury of organs on the regular functions of which sound health depends.

There is danger from indulging in artificial drinks. Nature distills over in the stomach by her own chemical processes—separating the water from them, which is used for legitimate purposes, but rejects all the rest, throwing it out of the body through the kidneys and skin. By working the renal apparatus beyond a normal gauge to carry off offending elements, they fall into disease beyond the resources of medicine. This explains a prodi-

gious advance of Bright's disease—that is, a degeneration and loss of ability in those organs to do what they must accomplish for stability in health. None of the lower animals have kidney disease, because they never drink to excess or burden the stomach with compound beverages.

IMPURE WATER.

Few of us are aware of the deleterious effects of impure water, or how prone water is to imbibe the impurities of air. Many of us think if the water is clear and cool it must be perfectly pure, though it has stood in a close bed-room twenty-four hours; but this is far from true. If a pitcher of water is set in a room for only a few hours it will absorb nearly all the respired and perspired gases in the room, the air of which will have become purer, but the water utterly filthy. The colder the water is, the greater the capacity to contain these gases. At ordinary temperatures a pail of water can contain a great amount of ammonia and carbonic acid gas, and its capacity to absorb these gases is nearly doubled by reducing the water to the temperature of ice. This plainly shows us that water kept in a room over night is totally unfit for drinking purposes, and should not be used to gargle the throat, also that a large pail of water standing in a room would help to purify the atmosphere, but should be thrown away the next morning.

Public attention cannot be too often called to the danger of using impure water in households. The origin of typhoid fever, which so frequently runs through families in the city and country, is oftener in wells and springs

than is supposed. In cities it is easy to understand, when aqueduct water is not supplied, how wells may become contaminated, but for many it is not so easy to see how wells in the country, among the hills, or in the green valleys, can become so impure as to be sources of disease.

Since the general introduction of aqueduct water into large cities, typhoid fever has become more common in the country than in the city, and this disease is certainly zymotic, or one which results from a poison introduced into the blood. Wells in the country are very liable to become contaminated with house sewerage, as they are generally placed, for convenience, very near the dwelling, and the waste liquids thrown out upon the ground find easy access by percolation through the soil to the water. The instances of such contamination which have come to our notice, and which gave rise to fevers, are numerous. The gelatinous matter which is often found covering the stones in wells affected by sewerage, is a true fungoid growth, and highly poisonous when introduced into the system. It is undoubtedly concerned in the production of typhoid fever. How it acts it is difficult to determine, but it is at least conceivable that the spores of the fungus may get into the blood and bring about changes after the manner of yeast in beer. These spores, as is well known, develop rapidly by a kind of budding process, and but a little time passes before the whole circulation becomes filled with them, giving rise to abnormal heat, and general derangement, called fever. These fungoid or confervoid growths are always present in waters rendered impure by house drainage, and great caution should be used in maintaining well waters free from all sources of pollution.

Repulsive as are rotten cellars and damp walls, impure water is one of the worst, as it is one of the most irremediable, sources of disease in rural districts. Too often "the old oaken bucket" overflows with poisonous germs. We do not exaggerate when we say that not one country well in five hundred is located at a sufficient distance from filthy surroundings. They derive their supply of water from a variable distance, depending upon the character of the soil, but never should they be less than fifty feet from any possible source of impurity. Generally, however, they are placed, for convenience sake, beside the kitchen door. And hard by the "help" or thriftless matron, after she has dutifully washed the dirt from the clothing of the family, weekly empties the foaming suds. Here are thrown slops from the kitchen, if nothing worse. Too near are the barn-yard, and other sources of pollution which need not be named, and through all these are leached the contents of the "old oaken bucket that hangs in the well." Careful filtration through charcoal will remove some of these impurities, and, with greater care regarding the refuse, will do as much as can be done from the kitchen to remedy possible and probable evils from this source.

Out of 140 families supplied with milk from a dairy in Islington, England, 70 suffered from typhoid fever; 368 cases occurred within ten weeks, and 30 persons died. An investigation showed that the cows drank water from an old underground tank, built of wood and much decayed. The milk cans were washed in the same water, and in all probability the water was also mixed with the milk. As the fever attacked only such parties in that district as used the milk, the water in the rotten tank must have been the cause. This is only one more evi-

dence of the danger of using foul water, and giving it to animals. It has been shown that stagnant water acts as a slow poison to animals as well as to men, and it is a matter of the first importance to all dairymen and stock raisers, as well as families, to use only pure fresh water.

Some people have been in the habit of boiling before using it, the water which is thought to be impure. Many scientific persons have condemned this, we think unjustly. It is true, boiling may deprive the water of certain gases and germs it is wholesome to have consumed, and therein may be injured; but it kills the multitude of animal and vegetable seeds and viruses which are ready to start some disease—perhaps ague, perhaps diarrhœa, and which all marsh water contains. Filtering is better, we believe, but where this cannot be done—where it will not be done and the water is still breeding disease—let it be boiled. But after water is boiled it should be thoroughly agitated with atmospheric air that it may imbibe some amount of this gas—an element which all wholesome drinking water must contain in solution.

Water is the most important property, after air, in securing good health. Eighty out of one hundred parts of the vital fluid that circulates in the animal economy of our bodies, and seventy-five out of every one hundred of the weight of every human body, are composed of water alone. It is the best solvent, and in this respect bears a very important relation to the human body. How necessary, then, that it should be free from all that can prove harmful to the health and welfare of the body.

The value of pure water, as a sanitary agent, can not well be over-estimated. Especially should great care be

bestowed upon the selection of the water that is used for drinking and cooking, and while in many cases really excellent water is readily accessible, it is also the case that much of the water that finds its way into our bodies is very unfit for that purpose. The great evil in the case of most kinds of water is the presence of organic matter; in other words, dead and decaying animal and vegetable matter has found its way into it. In the country, where the supply of water is obtained from a spring bubbling from a hill-side, and constantly changing, this difficulty does not prevail to any great extent. But in thickly peopled districts where wells are sunk beneath the surface, we often find the water so impure that it produces disease. This is especially the case where wells and cess-pools are in proximity to each other. It is a generally received idea that after water has been filtered through a thick layer of soil it becomes purified from all organic matter, and that this is true to a certain extent there can be no doubt. But it often happens that liquids highly charged with organic matter will flow through fissures in the ground for a considerable distance without losing much of their impurities.

The Baton Rouge Gazette and Comet says that it has been demonstrated at the Penitentiary that where cistern water is drank cholera cannot exist. We cannot vouch for the truth of this.

ICED WATER.

Dr. Gautz, a celebrated German physiologist, has been applying himself for some time past to experimental investigations, for the purpose of ascertaining to what

extent internal refrigeration is injurious to the system. Arguing from the extent and number of the epigastric vessels, and their extraordinary influence upon the general pressure of the blood, Dr. Gautz has been led to the conclusion that the extensive use of cold liquids must necessarily contract the minute arteries of the epigastric region, and the adjacent organs, thereby increasing the arterial pressure of the blood and inducing hemorrhage of the lungs, apoplexy, and kindred diseases. A series of experiments upon dogs, seemed to give positive proof that such was the natural result. It has been suggested that the startling number of what are termed sun-strokes, which have occurred, may have been induced, to some extent, by the excessive consumption of ice-cold soda-water. Whether or not this idea has any genuine foundation, prudence would suggest a very guarded use of icy drinks at times when the system is in an overheated condition.

In very hot weather, when water is rendered extremely cold by the use of ice in the cooler, no person should drink it in that condition, but should pour in, or draw from the hydrant, as much water of the ordinary temperature as will modify the iced water to about an October temperature. Then he may drink without damage. Nothing is worse for the teeth than extremely cold water; and many a man has acquired dyspepsia from its bad effect upon the stomach. Not a few have suffered from congestions which were dangerous or deathly. We remember a boy, smart, black-eyed, and handsome, who was connected with our office. He was just old enough to be wise above that which is written. Being one day remonstrated with for drinking two or three glasses of water as cold as ice could make it, he replied tartly,

“Water is never too cold for me; I never feel the slightest injury from its use.” The weather was extremely hot, and if ever cold water could be used at any time, that, of all others, when the system was overheated, was not the time to use it so copiously. The next day he was not in the office, and the following day he did not come. The third day about noon he made his appearance, and looked as if he had had chills and fever for three months. He drank no more iced water that summer, and probably got a lesson which will last him his lifetime.

In regard to drinks, the Americans are the most unwise of nations. The abundance of good drinking water often proves more of a curse than a blessing. Nothing is so injurious to the whole physical system as the unlimited use of ice-cold beverages to which we accustom ourselves. The inordinate use of iced food leads to diseases that can have but one result. Well-supplied tanks of ice-water are kept in offices, hotel parlors, cabins of steamboats, public parks, and even on the sideboard in private houses, which offer the temptation of “a cooling drink” to over-heated business men. The children run for iced water if warm, or unoccupied, and the habit of drinking it for pastime grows upon them. This sudden cooling of the system arrests the digestive process, causing oppression and irritation, and injures the coats of the stomach, thus laying the foundation of liver complaint, dyspepsia, and numerous diseases. In obedience to the laws of health, the temperature of the system should be kept equal, all sudden changes being avoided.

When drinking ice-water, wait a couple of seconds after each swallow or two. Half a glass taken in this way is more satisfactory than a pint drunk continuously.

As cold articles taken into the stomach are warmed by the circulation of the blood, and as muscular exercise increases the circulation in every part, it should always be used when any chill is felt at the stomach after taking anything cold.

SUMMER DRINKS.

The most healthful drink is running water, at the temperature of the air at the time and place. Running water purifies itself. The running water of a spring is purer fifty feet from the fountain than at the fountain-head, because exposure to the air causes the oxidation or chemical decomposition of any impure and more solid matters which bubble up from the depths below. Many cases are given where the drinking of apparently pure spring or well water has caused severe sickness or death in whole families, because they received the drainage of privies and barnyards and house-drains.

A pint of molasses stirred in a gallon of water makes a healthy, cooling, opening drink for summer, and is very agreeable; is good for harvesters, and so is buttermilk. Buttermilk is also a delightful, safe, and nourishing drink for all, especially laborers and men in the harvest-field.

Acid drinks in summer cool the system, correct biliousness, and keep down fevers. Those made with lemon, sugar and water are better than if vinegar is used.

If ice-water is used it should be between meals, with an interval of a few seconds after each swallow or two. Half a glass drank thus will satisfy more than a pint if drank continuously, and without the uncomfortable sensation of fullness accompanying large potations. It is more healthful and far better to take a cup of hot drink

at meals than a glass of ice-water; the latter has often given dangerous and even fatal chills. If a person sits down to a meal on a hot day—weak and tired, and hungry and thirsty—a glass of ice-water will have a delicious taste; but it endangers an ugly chill.

Let it be remembered that the sensation of thirst is as completely satisfied with a glass of water as with a glass of soda, beer, or any spirit mixture, with the advantage that it costs nothing. Any one may try this for himself, when, on a warm day, he feels that a glass of soda-water or iced toddy would be perfectly delicious. Let him take, instead, a glass of pure, cool water, then he would not take the liquor if he could get it. He has no desire for it.

An immense quantity of soda water is required in cities, during the hot season, to meet the calls at almost every corner. It is possible, and we believe not very uncommon, to use it to excess, and produce difficulties not easily remedied.

No beers, or wines, or brandies—nothing alcoholic for summer drinks. They are all carbonaceous and increase the heat and fever of the system; they clog up, instead of lighten; they debilitate instead of giving strength. The tendency of the system in all lands in summer is to biliousness—to bilious diseases; we call them fevers. This is because we eat more than we wear out or work out by exercise or labor; hence the body becomes too full. The great scavenger or emptier of the body is the liver—it is like the pump in a sinking vessel; you must keep it at work or all is lost. As warm weather renders us incapable of doing as much work in summer as in winter, and as work was intended, in part, to work out the wastes of the system, some substitute must be provided, some compensating power. That power is the liver.

It must be made to do more work in summer; and a beneficent Providence has made provision for this in sending us the berries and fruits of warm weather, which contain an ingredient, the acid, which, after six thousand years, the French found out has its efficacy toward cooling off the body by acting on the liver—having an effect upon it to make it work more actively, and thus more promptly remove the bile, which is the waste matter of the system, from the blood.

Everybody knew that fruits and berries were cooling—were “healthy;” but how they were, was not definitely known until within a few years. The wisdom and benevolence of our Maker in this thing, surely, will command our affections, in that He has provided these fruits and berries in such generous profusion, and combined a necessary quality with such a delicious taste, that every soul of man is perfectly ravenous for them, and we can eat them without harm, to our utmost fill, if ripe, raw and perfect, and taken alone.

In the absence of fruits and berries, we may obtain the needed natural acid from the lemon, diluted with water: but the most universally available acid drink for summer as a natural aid to the liver is buttermilk, to be taken at meal times, or between meals when thirsty. For outdoor labor, buttermilk is the safest, most healthful and cooling of summer drinks, to be taken at the temperature of the air. If a mouthful is swallowed at a time with a distinct interval, the thirst will be better satisfied with a quarter of a pint, than if a whole cupful is taken without being removed from the lips.

A palatable and safe summer drink for outdoor workers is water, of the natural temperature sweetened with molasses. All root beers are pernicious.

It is suggested by the Medical Journal of Edinburgh that oatmeal stirred up in cold water at the rate of two teaspoonfuls of meal to a half pint of water, would be a very healthful and grateful drink in the harvest-field. In England, at a recent ploughing match, the only drink furnished was water with oatmeal stirred into it, and it was found "mighty refreshing." We give cornmeal in water to our horses for a drink with great advantage. Why should we not treat ourselves to the same healthful luxury?

A medical journal states that a pebble carried in the mouth excites the salivary glands to act with such energy that thirst is not felt.

MOTHERS AND INFANTS.

It seems beyond dispute that a mother casts the die of her child's destiny, physical, moral and emotional, by the method of her life for the year preceding birth, and she has it in her power to decide whether the child shall be safely and healthfully born, or not. A good constitution and a high moral and religious sentiment are given to the child through the mother, and are determined by her obedience or disobedience of the laws of life. Right nursery training does a very great deal in this direction, and may modify it afterwards, but it is ante-natal training that gives the bent, that moulds the constitution and the character; if, during the forming stages of existence, while yet the breath of life has not been drawn, the mother is weakly, fretful, complaining and foreboding, or gives loose rein to appetite and indulgence, so will be the child that is to be born into the world. These sug-

gestions merit the attention of all thoughtful men and women; in fact, it may be urged as a christian duty to bestow attention to so grave and momentous a subject. Certain it is that the aims and ambitions, and aspirations of the mother of a Bonaparte, a Henry Clay, a Horace Greeley—yes, of Samuel, and Sampson, and Solomon, and Daniel, and John, founded and developed, and then lived again in the illustrious names which history records.

The gift of a promising and healthy infant to young parents is too often the occasion of pride, rather than of humble gratitude and devout meditation. What sober reflection should be excited in the mind of every parent, on beholding an infant, by the thought, “another lamp lighted to burn to all eternity.”

The youthful visitor excites not only the attention of grandparents, uncles and aunts, but every child in the neighborhood sallies out to caress and welcome the little stranger. This is just as it should be—for it is truly an occasion of rejoicing—if the mother had sufficient experience and firmness to refuse, on many such occasions, to awaken the heavy slumbers of her tender babe.

How absurd—how ridiculous the practice of some young mothers, and even fathers too, to snatch from the warm couch a sleeping infant—rudely shaking it, that it may again display its fine eyes and dimpled cheeks—pronounced by flattering friends to be the finest ever beheld! This cruel practice is often maintained for successive weeks and even months; and what is the consequence? Why the poor little thing is rendered miserable. It cannot in a moment resume its wonted composure and inclination to sleep; the consequence therefore is, that the infant expresses its want of rest and sleep by crying. Too often an effort is made to quiet it by trot-

ting, and tossing, and turning it from side to side, or throwing it rudely from lap to lap; but instead of so much exercise, it only needed gentle treatment and quiet sleep. Nothing can be more false than that very young infants need much exercise; the reverse of this is true, and the evils of such an infringement upon the laws of nature will not be short-lived.

The child thus early acquires a habit of crying and restlessness, but the violence of this motion, instead of being checked, by such indications is often increased, until wearied by this expedient, the next resort is to administer food. Whether the child be hungry or not, food is forced upon it, in spite of its struggling and resistance. It now becomes uneasy from a sense of fullness, and exhibits symptoms of pain and distress. By this time the infant is considered quite ill; recourse is next had to an anodyne; but this is only the beginning of evil, for this well-meant but ill-advised kindness is followed by new and strange symptoms, such as rolling of the eyes, contortions of the mouth and whole body, a continual starting. The affectionate mother and anxious nurse are thrown into a state of painful solicitude. Some kind hearted neighbor is invited in, for consultation, perhaps to prescribe a second anodyne or some other medicine.

A habit of restlessness and crying is thus early entailed upon the child, much to the annoyance of the whole family. Who could have apprehended such a train of evils from so trivial a cause? Nor is this all: the frequent crying of the child during the night has created a necessity for a light constantly burning. The time, however, arrives when it is thought best to dispense with the midnight lamp, but by this time the bright

blaze of a candle has become an object of admiration to the unfolding intellect of this little paragon, and its demands for its continual shining are made in accents not to be misunderstood by those accustomed to observe and reflect. The infant would like to survey this beautiful object nearer, but in the present case its cries to this effect are misapprehended. Recourse, as usual, is had to food or medicine, until irregularity in eating, and sleeping, and frequent dozing, brings on a disordered stomach, perhaps an incipient dyspepsia. The poor babe now, in fact, becomes ill, to which is superadded a sore mouth, the common effect of an overloaded and acid stomach. It refuses to take its customary food, occasioning to the poor mother no ordinary suffering. Many a sleepless night and anxious hour she contemplates a sad catastrophe, which casts a gloom over this hitherto happy nursery. But the apprehended evil is often magnified; repellants are therefore applied with zeal and energy, until loss of appetite, the pallid cheek, and perhaps hectic flush, indicate symptoms of a speedy consumption. Many a mother can testify to the experience of all these and many other evils, produced by pride, negligence, or inexperience. The evil which had its origin in pride is usually maintained by a display in dress; a heavy, stiff-worked cap and tight-laced frock must be uncomfortable to the yielding frame of a tender infant.

How much more good sense, and economy, and real affection is shown by that mother who so manages as to keep her young infant sleeping at least two-thirds of the day and the live-long night; feeding it at intervals of from three to four hours, perhaps only once during each night—dressed in a plain muslin frock and cap!

With health and strength renewed, she again engages with alacrity in the domestic duties of her family, and the more delightful and important business of training an intellectual and immortal being.

A healthy infant never cries but for one or two reasons; namely, it is either hungry or in pain. If the former, we can stop it; if the latter we must ascertain the best mode of operating. If an infant is hungry it will simply cry; if in pain, it will draw up its little limbs and stretch them out again spasmodically, and in many ways show evidence of pain. More than half the pain young infants suffer, might be avoided if they were kept sufficiently warm. An infant can hardly be kept too warm the first few weeks of its life. We do not believe in covering them up entirely; they should have a sufficient breathing place, and plenty of pure air. Now for the remedy—unpin the clothing, all but the band, unless this should seem unnecessarily tight. Apply warm, dry flannels to the stomach and feet. The pain as stated, is generally owing to lack of warmth, or flatulency, to remedy the latter give one or two teaspoonfuls of warm water; do not sweeten it for, in case of acidity of the stomach, it would only be adding fuel to the fire. In protracted cases of crying, when these remedies fail, undress the child, leaving the band, and wring a towel out of warm water, wrap it in this, and a warmed woollen blanket over, and let it remain until it is quieted. I believe this is a never failing remedy, but seldom necessary, as the dry flannels generally answer the purpose.

I have seen infants a week old or less fed on catmint tea, peppermint, paragoric, alcoholic stimulants of all kinds, and numerous other things too heathenish to mention. Now, let us listen to known facts: An infant's

stomach at birth holds, according to medical authority, about one tablespoonful. What must be the result when the little sufferers are fed nearly a half-cupful at one time? Why, their little stomachs are distended, and the pain consequently increased ten-fold. If they are fortunate enough to eject the same, the wind comes up with it, and the child is immediately relieved, the good effects being attributed entirely to the virtue of the aforesaid tea, syrup, etc. Simple warm water would be far better, as there could be no such bad results from using it as might follow from the use of other remedies. No infant needs anything more than what nature supplies—its natural food—and occasionally a little cold water.

Never let an infant sleep between two grown persons. If you wish it to sleep with you, by all means let it occupy the side of the bed. By placing it in the middle it is not only in danger of suffocation, but must necessarily breathe the air from the bed. Many impurities are thrown off the system while sleeping, consequently the child breathes poisonous air all night. If your bed stands against the wall you can have no fear of its falling out; if in the centre of the room, which is better, place something to the side of the bed. Then do not depend on the bed covers to keep the child warm, but have a separate blanket, otherwise the child will be uncovered half the night. Do not let it sleep on your arm or give it nourishment through the night, after it is two or three months old at the longest. It does the child no harm to fast until four or five o'clock in the morning, and it does the mother positive harm to feed it during the night.

Babies often cry without any apparent reason; but a mother can usually discover a reason if she stops to think about it. And it is worth stopping to think about, no

matter if the housework or sewing be delayed awhile in consequence. Perhaps she has eaten something which disagrees with the stomach; perhaps it is thirsty, for little babies are often thirsty, and will drink a teaspoonful of cold water with the greatest eagerness, and be quiet and satisfied after it. Perhaps its little sock is tied too tightly. More likely than anything else, the flannel band around its bowels—if one is there—or its skirt-band is pinned too tightly. I know a baby who has cried a great deal because he has always been dressed too tightly. The mother said to me one afternoon, when the child was so cross she hardly knew what to do, "I've a great mind to undress him and put on his night gown; he is real good then." So she did, and he commenced to be good at once. Mothers should search for all such possible causes when their babies get fretful. They should not be too ready to attribute their crying to nervous temperament or to hunger, for it is more likely to be caused by the prick of a pin or an overfed stomach than either.

As to food, the practice is the moment an infant is noticed to cry, it is fed; the result is, that in less than a week the little thing cries oftener from colic than from hunger, which may often be known by its vomiting soon after it is fed, or by its refusing to take food; the great, essential point is to feed all children at regular intervals; from neglect of this, infants are made dyspeptic before they are a month old, and between alternate feeding and physicing, they go off in convulsions, water on the brain, or diarrhea. Notice at what intervals food is necessary, and feed only at such times, these being greater as the child gets older; next keep the child abundantly warm; keep it constantly clean; let it be in the open air every

day, and never allow it to be showered or bathed in cold water.

One-third of all the children born, die before they are two years old, and three-fourths of these perish unnecessarily ; perish as a consequence of the neglect or ignorance of mothers. Most infants are physiced and fed to death. No medicine whatever, not the modest "catnip tea," should be given to an infant without the direction of the family physician.

Of the 4,000,000 deaths recorded in England and Wales from 1851-60, nearly 2,000,000 were those of children under 5 years of age. In this country the mortality of children is increasing with terrible rapidity. In Boston, the percentage of deaths of children under 10 doubled from 1830 to 1850. In New York, the deaths of children to each 100,000 inhabitants have more than trebled since 1810

At the annual convention of German naturalists, at Leipsig, Professor Keclam, in an essay on the extraordinary mortality among children in large cities, said that stupid mothers killed in Boston, Philadelphia, and New York, annually, fifty thousand children at a tender age, and villainous mothers in the same cities murdered in the same time as many more before giving birth to them. He said also, that the Yankees, owing to the beauty of their women, should be the most and not the least prolific race on earth ; and if they were not it was owing to the prevalence of abortionism. This horrible practice, if not speedily checked, he predicted, would, before long, undermine the greatness of the American Republic.

CARE OF INFANTS.

In behalf of the rising generation, we implore the medical profession to let the babies alone. We deprecate the "slaughter of the innocents." It is bad enough for the dear little things to suffer of the ignorance of mothers, the carelessness of nurses, and the meddlesomeness of friends and neighbors. But when to these are added the doses of the drug-shop, supplemented with the poison of the dram-shop, we respectfully protest. We have long been of the opinion that, if mothers and nurses were left to their own common-sense and common instincts, with no instructions of any kind from medical men, and no medical books of any kind to refer to, it would be vastly better for their offspring than it is under the existing order of things. True, many blunders would occur in the business of feeding well babies, and in the management of sick ones, but fewer would be killed, or maimed and crippled for life.

The only valuable work we ever saw on Infancy, says Mrs. E. C. Stanton, was written by a man, Andrew Combe, of Scotland, a sound thinker and a learned physiologist. We shall never forget how tempest-tossed we were when we found ourself the happy possessor of a man child, without the slightest knowledge of what to do for his comfort and protection. An ignorant nurse fidgetted round the room day and night, sang melancholy ditties, and rocked vehemently, while the child cried continually with a loud voice, and we wept, prayed and philosophised by turns. Reasoning on general principles, we at last came to the conclusion that inasmuch as the child was large and vigorous, there must be some mistake on

the part of the nurse that he was not quiet and comfortable. Accordingly, we fortified ourself in that opinion by what Combe had to say on babies in general. The result of this consideration of his opinions was a prompt revolution in the whole nursery department, and a transfer of pain from the baby to the nurse, who stood humbled and chagrined as she saw her time-honored system summarily set aside, the pins, paragoric, catnip and cradle driven out, while pure air, sunlight and common sense walked in. Oh, what sighs, what groans, what doubtful shakings of the head, what suppressed laughter and whisperings in the hall we heard during the first few days after the inauguration of that dynasty of health, happiness and rest to that new-born soul. When the three hours' cry began that day, which ancient dames assured us was a custom that had been faithfully kept by all of the sons of Adam, from time immemorial, we ordered the little sufferer undressed and put in a warm bath; that brought instant relief; after which he was dressed in a few light garments hung on the shoulders, with no swaddling bands, no pressrue of the lungs or bowels, and was laid down to sleep. He was fed every two hours by day, and but once during the night. After that we had peace, though eternal vigilance on our part was its price. The custom of pinning babies up as tight as a drum is both cruel and absurd. We asked the antiquarian who tortured our first-born in that way, why she did it? "The bones of young babies are so soft, and their flesh so tender," she said, "that they are constantly in danger of dissolution unless tightly pinioned together." We soothed her fears by pointing to the fact that colts and calves, puppies and kittens all live and flourish without bandages, and for the benefit of the human race, we

said we would make the experiment on one of the human family.

There is no surer method of rendering the vital thread of a being from its origin short and perishable than by giving it, during the first years of life, which may be considered as a continued generation and expansion, a very warm, tender, and delicate education; that is, by guarding it from every breath of cool air, burying it for at least a year among pillows and blankets, and keeping it like a chicken in a real state of hatching; not omitting, at the same time, to stuff it immoderately with food; and, by coffee, chocolate, wine, spice, and such like things (which are nothing else than poison), to irritate it beyond measure, and to render its whole vital activity too strong and violent. By these means its internal consumption is from its birth so accelerated, its intensive life is so early exalted, and its organs are rendered so weak, tender, and sensible, that one may assert that, through two years' treatment of this kind, an innate vital capacity of sixty years may be reduced one-half; nay, as experience unfortunately shows, to much less, without reckoning those evil accidents and diseases which may besides be the consequence. The premature expansion of our organs and powers is by nothing so much hastened as by such a forced education; and we have before proved what an intimate connection there is between rapid or slow expansion, and a longer and shorter duration of life in general.

Speedy ripening carries always along with it speedy destruction. This, certainly, is one great cause of the dreadful mortality which prevails among children. But men overlook those causes which lie nearest to them, and assume rather the most absurd, in order that their

minds may be at rest, and that they may have as little to do as possible.

Cradles are a nuisance and should be abolished from every home; they are utterly needless, and more than that, they are injurious, the continual rocking producing a bad effect upon the health of the children. How would the mothers and nurses like to be put into a cradle correspondingly large for them, and be rocked vigorously to and fro for hours at a time! "But," they will exclaim, "how shall we get the little one to sleep when he is restless?" If they are provided with the right kind of food at proper times, and in proper quantities, bathed as they should be, and correctly attended to in other respects, they will not need the cradle, nor any opiates, paragogics, or soothing syrups, to lull them to sleep.

Great care should be taken with weakly children not to allow them to begin to walk till their bones have become sufficiently ossified and strong to support the weight of the body without bending. Parents are usually anxious to have the "baby" begin to walk at as early an age as possible, and they force it upon its feet before the bones of the legs have become strong enough to support the weight of the body, and they bend under it.

Never raise a child by the hand or wrist. It is a common practice of nurses and parents to grasp children by a single hand or wrist, and lift them bodily, as in stepping over gutters, streams, &c. Occasionally a child is seized by the hands and swung around with great force, the body being held nearly at right angles. This feat is not always followed by immediate ill effects, but it is liable to result in most serious injury. At this period of life the ends of the long bones are united to the shafts

by cartilage, which renders them weak and liable to be distorted by force. There are three of these bones in the arm; one between the shoulder and the elbow, and two between the elbow and wrist. The arm of the child is therefore very weak. When extension is made at the hand the force is not expended upon long, firm bones, but rather upon bones broken at several points, and very loosely united. A small force, far less than is required to fracture a fully formed bone, will separate the cartilaginous portions, or permanently bend them. There is also another form of injury which may occur at the instant. Of this I have seen several examples. It consists in a slight displacement of the cartilages in one of the joints, either the wrist or elbow, attended by pain, swelling and tenderness. The joint is fixed in a semi-flexed position, and the little sufferer will not allow it to be moved or even handled. It can be easily rectified by a surgeon, by forcible flexion and extension. Finally, by lifting a child in this manner the ligaments about the joints may be extended and this will weaken the joints, and this weakness may remain as a permanent disability.

Bow legs and knock knees are among the common deformities of humanity; and wise mothers assert that the crookedness in either case arises from the afflicted one having been put upon his or her feet too early in babyhood. But a Manchester physician, Dr. Crompton, who has watched for the true cause, thinks differently. He attributes the first mentioned distortion to a habit some youngsters delight in of rubbing the sole of one foot against that of the other; some will go to sleep with the soles pressed together. They appear to enjoy the contact only when the feet are naked; they don't attempt to make it when they are socked or slip-

pered. . So the remedy is obvious; keep the baby's soles covered.

Knock knees the doctor ascribes to a different childish habit, that of sleeping on the side with one knee tucked into the hollow behind the other. He has found that where one leg has been bowed inward more than another, the patient has always slept on one side, and the uppermost member has been that most deformed. Here the preventive is to pad the insides of the knees so as to keep them apart and let the limbs grow freely their own way. All of which is commended to mothers who desire the physical uprightness of their progeny.

The promiscuous kissing of children is a pestilent practice. We use the word advisedly, and it is mild for the occasion. Murderous would be the proper word, did the kissers know the mischief they do. Yes, madam, murderous; and we are speaking to you. Do you remember calling on your dear friend Mrs. Brown the other day, with a strip of flannel round your neck? And when little Flora came dancing into the room, didn't you pounce upon her demonstratively, call her a precious little pet, and kiss her! Then you serenely proceeded to describe the dreadful sore throat that kept you from prayer-meeting the night before. You had no design on the dear child's life, we know; nevertheless you killed her! Killed her as surely as if you had fed her with strychnine or arsenic. Your caresses were fatal. Two or three days after the little pet began to complain of a sore throat too. The symptoms grew rapidly alarming, and when the doctor came the simple word diphtheria sufficed to explain them all. To-day a little mound in Greenwood is the sole memento of your visit. Of course the mother does not suspect and does not dare

to suspect you of any instrumentality in her bereavement. She charges it to a mysterious Providence. The doctor says nothing to disturb the delusion; that would be impolitic, if not cruel; but to an outsider he is free to say that the child's death was due directly to your stupidity. That is precisely the word; more forcible than elegant, it is true; but who shall say, under the circumstances, that it is not justifiable? Remember

"Evil is wrought by want of thought
As well as by want of heart."

It would be hard to tell how much of the sickness and mortality from diphtheria is due to such a want of thought. As a rule, adults have the disease in so mild a form that they mistake it for a simple cold, and as a cold is not contagious they think nothing of exposing others to their breath, or to the greater danger of labial contact. Taking into consideration the well established fact that diphtheria is usually, if not always, communicated by the direct transplanting of the malignant vegetation which causes the disease, the fact that there can be no more certain means of bringing the contagion to its favorite soil than the act of kissing, and the further fact that the custom of kissing children on all occasions is all but universal, it is not surprising that, when the disease is once imported into a community, it is very likely to become epidemic. It would be absurd to charge the spread of diphtheria entirely to the practice of child-kissing. There are other modes of propagation, though it is hard to conceive of any more directly suited to the spread of the infection or more general in its operation. It stands to diphtheria in about the same relation that promiscuous hand-shaking formerly did to the itch. It

were better to avoid the practice. The children will not suffer if they go unkissed ; and their friends ought for their sake to forego the luxury for a season. A single kiss has been known to infect a family, and the most careful may be in condition to communicate the disease without knowing it. Beware, then, of playing Judas, and let the babies alone.

Children should never be allowed to remain in a room where people are smoking. I have known many children ruined by breathing day after day the vile smoke of the father's cigar, and sometimes the mother's pipe. If a parent is so ignorant of the laws of life as to smoke where young children live, he is a barbarian, indeed.

CARE OF INFANTS IN HOT WEATHER.

The following excellent rules for the care of infants during the hot months were prepared by a committee of six physicians appointed for the purpose by the Obstetrical Society of Philadelphia :

1. Bathe the child once a day in tepid water. If it is feeble, sponge it all over twice a day with tepid water, or with tepid water and vinegar. The health of a child depends much upon its cleanliness.

2. Avoid all tight bandaging. Make the clothing light and cool, and so loose that the child may have free play for its limbs. At night undress it, sponge it, and put on a slip. In the morning remove the slip and dress the child in clean clothes. If this cannot be afforded, thoroughly air the day-clothing by hanging it up during the night. Use clean diapers, and change them often. Never dry a

soiled one in the nursery or in the sitting-room, and never use one for a second time without first washing it.

3. The child should sleep by itself in a cot or cradle. It should be put to bed at regular hours, and be early taught to go to sleep without being nursed in the arms. Without the advice of a physician, never give it any spirits, cordials, carminatives, soothing-syrups, or sleep-drops. Thousands of children die every year from the use of these poisons. If the child frets and does not sleep, it is either hungry or ill. If ill it needs a physician. Never quiet it by candy or cake; they are the common causes of diarrhœa, and other troubles.

4. Give the child plenty of fresh air. In the cool of the morning and evening send it out to the shady sides of broad streets, to the public squares, or to the Park. Make frequent excursions on the rivers. Whenever it seems to suffer from the heat, let it drink freely of ice-water. Keep it out of the room in which washing or cooking is going on. It is excessive heat that destroys the lives of young infants.

5. Keep your house sweet and clean, cool and well aired. In very hot weather let the windows be open day and night. Do your cooking in the yard, in a shed, in the garret, or in an upper room. Whitewash the walls every spring, and see that the cellar is clear of all rubbish. Let no slops collect to poison the air. Correct all foul smells by pouring carbolic acid or quick-lime into the sinks and privies. The former article can be got from the nearest druggist, who will give the needful directions for its use. Make every effort yourself, and urge your neighbors, to keep the gutters of your street or court clean.

6. Breast-milk is the only proper food for infants. If

the supply is ample, and the child thrives on it, no other kind of food should be given while the hot weather lasts. If the mother has not enough, she must not wean the child, but give it, besides the breast, goat's or cow's milk, as prepared under Rule 8. Nurse the child once in two or three hours during the day, and as seldom as possible during the night. Always remove the child from the breast as soon as it has fallen asleep. Avoid giving the breast when you are overfatigued or overheated.

7. If, unfortunately, the child must be brought up by hand, it should be fed on a milk-diet alone, and that, warm milk out of a nursing-bottle, as directed under Rule 8. Goat's milk is the best, and next to it cow's milk. If the child thrives on this diet, no other kind of food whatever should be given while the hot weather lasts. At all seasons of the year, but especially in summer, there is no safe substitute for milk to an infant that has not cut its front teeth. Sago, arrow-root, potatoes, corn-flour, crackers, bread, every patented food, and every article of diet containing starch, cannot and must not be depended on as food for very young infants. Creeping or walking children must not be allowed to pick up unwholesome food.

8. Each bottleful of milk should be sweetened by a small lump of loaf-sugar, or by half a teaspoonful of crushed sugar. If the milk is known to be pure, it may have one-fourth part of hot water added to it; but, if it is not known to be pure, no water need be added. When the heat of the weather is great, the milk may be given quite cold. Be sure that the milk is unskimmed; have it as fresh as possible, and brought very early in the morning. Before using the pans into which it is to be

poured, always scald them with boiling suds. In very hot weather, boil the milk as soon as it comes, and at once put away the vessels holding it in the coolest place in the house,—upon ice if it can be afforded, or down a well. Milk carelessly allowed to stand in a warm room soon spoils, and becomes unfit for food.

9. If the milk should disagree, a tablespoonful of lime-water may be added to each bottleful. Whenever pure milk cannot be got, try the condensed milk, which often answers admirably. It is sold by all the leading druggists and grocers, and may be prepared by adding, without sugar, one teaspoonful, or more, according to the age of the child, to six tablespoonfuls of boiling water. Should this disagree, a teaspoonful of arrow-root, of sago, or of corn-starch to the pint of milk may be cautiously tried. If milk in any shape cannot be digested, try, for a few days, pure cream diluted with three-fourths or three-fifths of water,—returning to the milk as soon as possible.

10. The nursing-bottle must be kept perfectly clean; otherwise the milk will turn sour, and the child will be made ill. After each meal it should be emptied, rinsed out, taken apart, and the tube, cork, nipple, and bottle be placed in clean water, or in water to which a little soda has been added. It is a good plan to have two nursing-bottles, and to use them by turns.

11. Do not wean the child just before or during the hot weather, nor, as a rule, until after its second summer. If suckling disagrees with the mother, she must not wean the child, but feed it in part, out of a nursing-bottle, on such food as has been directed. However small the supply of breast-milk, provided it agrees with the child, the mother should carefully keep it up against sickness: it

alone will often save the life of a child when everything else fails. When the child is over six months old, the mother may save her strength by giving it one or two meals a day of stale bread and milk, which should be pressed through a sieve and put into a nursing bottle. When from eight months to a year old, it may have also one meal a day of the yolk of a fresh and rare boiled egg, or one of beef or mutton-broth into which stale bread has been crumbled. When older than this, it can have a little meat finely minced; but even then milk should be its principal food, and not such food as grown-up people eat.

For the convenience of mothers, the following receipts for special forms of diet are given :

BOILED FLOUR, OR FLOUR BALL.—Take one quart of good flour, tie it up in a pudding bag so tightly as to get a firm, solid mass, put it into a pot of boiling water early in the morning, and let it boil until bedtime. Then take it out and let it dry. In the morning, peel off from the surface and throw away the thin rind of dough, and, with a nutmeg-grater, grate down the hard, dry mass into a powder. Of this from one to three teaspoonfuls may be used, by first rubbing it into a paste with a little milk, then adding it to about a pint of milk, and, finally, by bringing the whole to just the boiling point. It must be given through a nursing-bottle.

An excellent food for children who are costive in their bowels may be made by using bran-meal or unbolted flour instead of the white flour, preparing it as above directed.

RICE WATER.—Wash four tablespoonfuls of rice, put it into two quarts of water, which boil down to one quart, and then add sugar and a little nutmeg. This makes a pleasant drink.

A half pint or a pint of milk added to this, just before taking it from the fire, and allowed to come to a boil, gives a nourishing food suitable for cases of diarrhoea.

Sago, tapioca, barley, or cracked corn can be prepared in the same manner.

BEEF TEA.—Take one pound of juicy, lean beef—say a piece off the shoulder or the round—and mince it up with a sharp knife on a board or mincing-block. Then put it with its juice into an earthen vessel containing a pint of tepid water, and let it stand for two hours. Strain off the liquid through a clean cloth, squeezing well the meat, and add a little salt. Place the whole of the juice thus obtained over the fire, but remove it as soon as it has become browned. Never let it boil; otherwise most of the nutritious matter of the beef will be thrown down as a sediment. A little pepper or allspice may be added if preferred.

Mutton-tea may be prepared in the same way. It makes an agreeable change when the patient has become tired of beef-tea.

RAW BEEF FOR CHILDREN.—Take half a pound of juicy beef, free from any fat; mince it up very finely; then rub it into a smooth pulp either in a mortar or with an ordinary potato-masher. Spread a little out upon a plate and sprinkle over it some salt, or some sugar, if the child prefers it. Give it with a teaspoon or upon a buttered slice of stale bread. It makes an excellent food for children with dysentery.

CARE OF INFANTS AT NIGHT.

It is said that Sir Edward Codrington, when a young officer at Toulon, was so anxious to distinguish himself

that he passed the greater part of the day on deck, watching for signals to give intelligence of the movements of the French vessels, and when he retired, he sank into a sleep so profound that the loudest noises did not awake him; but when the word "signal" was whispered in his cabin, he immediately sprang up. This anecdote proves how sleepless in the midst of the profoundest slumbers is that faculty of the soul which for the time being is intensely excited.

The same truth is well illustrated in the case of the mother. She is the most sleepless person in the household. For months, and often years, she does not enjoy two consecutive hours of sleep. But it is not the noises in the street, nor anxiety, nor nervousness, that disturb her repose. She can sleep soundly when others are made wakeful by unusual sounds or voices. But there is one sound, one voice, more potent in her ears than all others: it is the voice of her child. When that is heard, even in the faintest whisper, she arouses from the deepest sleep; however insensible she may be to other voices, that one never fails to be heard by her quick ear.

Mothers often relate that, long after their children have grown to manhood and womanhood, they are startled from their slumbers by the old and familiar cries of their babyhood. This instinctive wakefulness of the mother to the wants of her child teaches a most important lesson in the care of children at night. It is a growing practice in our first-class families to commit the infant to the care of the nurse at night, that the mother may not be disturbed, but may have her regular and full amount of sleep. This is done under the pretence that the mother's health requires that her night's rest should not be broken by the care of the child. Except in ex-

traordinary cases, there is no truth in the assertion: if the mother and child are in ordinary health, the proper care of her infant at night does not tax the mother beyond her strength; while the judicious care of the child by the mother diminishes greatly the irritability and restlessness of the former.

But there are certain positive evils and dangers attending the care of the infant by a nurse at night. It will prove, in nine cases out of ten, that the nurse considers her own sleep of paramount importance, and in about the proportion given it will be found that she manages to obtain it. In the first place, her affections are not stimulated by the child, and hence her sympathies are not enlisted in its care and welfare. She sleeps quite unconscious of and undisturbed by its cries, when its plaintive voice penetrates to the mother's ear, though in a distant and secluded part of the house. Thus many a helpless infant that has become tired of lying in one position, and merely requires to be changed to secure perfect rest and quiet, cries itself asleep from sheer exhaustion, unable to arouse the leaden ears of its nurse. One of the first and most dangerous consequences of committing the child to the care of the nurse at night, is her liability when asleep to overlay and smother it without hearing its stifled cries. The English mortuary records show that two or three hundred children are thus killed annually.

But if the child escapes death or injury from this cause, it is by no means free from danger from other sources. It is liable to be habitually drugged to sleep. This may, and doubtless will be regarded by many as an unjust suspicion upon their own "faithful" nurses; but there are too many facts accumulated against them to make it doubtful. It must be assumed as a truth that nurses will

have their own usual amount of sleep. If they cannot obtain it on account of the restlessness of the child, they soon learn the remedy for its sleeplessness. They try it secretly and cautiously, and find it succeeds perfectly; they repeat it with equal success several times; and now, made bold and confident, they administer the anodyne with liberal hand every night, or at least when they fear the child will disturb their own slumbers. A child thus treated soon becomes unusually irritable and peevish, its digestion is impaired, its complexion is a dirty, sallow hue, it suffers from constipation, and finally sleeps soundly only when under the influence of its accustomed drug. How many children in every wealthy and fashionable community, with good native constitutions, fall into premature decay from this cause, it is impossible to determine; but the coroner's inquests prove that many infants die annually from the imprudent use of the drugs in constant use in many nurseries.

It can but be regarded as an axiom of the utmost importance in the rearing of children, that the mother should have the personal charge and care of them at night. A medical writer of great experience says: "How many children sleep the sleep of death through the undue administration of carminatives and other nostrums! It requires the mother's greatest vigilance to prevent such weapons being introduced into the nursery; for a nurse, however otherwise excellent, is apt to prefer the comfort of uninterrupted slumber to the performance of her duty in studying the welfare of the child committed to her care." A number of physicians, practising in New York and Brooklyn, having "compared notes," have come to the conclusion, that one leading cause of the mortality among children arises from their being left

too much to the care of servants. It has been observed, that children, who are taken care of by their parents, undressed and put to bed by them, and by them dressed in the morning, and kept under a loving mother's eye during the day, are, as a general thing, far more healthy, good-tempered and intelligent, than such as are left almost exclusively to the care of servants. In addition to this, it must be remembered, that most of the accidents which happen to children, whereby they are seriously injured, maimed and rendered idiotic, occur through the negligence of those in whose care they are left by unthinking and unloving parents. In Munich, the authorities for some years past have required that in all cases of children dying in their first year, the parents should declare whether or not the infant had been nursed by the mother. A statistical table of the last two years, shows that out of one hundred deceased infants, eighty-eight were not so brought up.

By far the most common cause of restlessness at night is injudicious feeding, the child being stuffed with food, which, although not necessarily in itself injurious, is yet ill adapted to the nourishment of the particular infant to whom it is given. It is a common practice among mothers—especially those of the poorer classes—to make up for any deficiency in the amount of breast-milk by farinaceous food, long before the digestive power of the child is suited to such a diet. The stomach of an infant of about two months old is thus often filled with a mass of starchy matters, which the absence of saliva will not permit him to digest. This mass, fermenting in his bowels, is a source of continual discomfort until it is evacuated. Even when cow's milk is used as an addition to breast-milk, it is frequently ill-digested, although

diluted with water. The clot formed by the coagulation of cow's milk is particularly firm and solid, and differs very much in that respect from the clot of human milk, which is exceedingly light and flocculent. In very young infants, therefore, and in older infants of delicate stomachs, the digestive juices can make little impression upon the mass of curd. Feeding so conducted cannot be continued for long together, without producing very evident signs that the nutrition of the body is no longer efficiently maintained. The child, deriving very little nourishment from the food, however eagerly he swallows it, will soon begin to waste, in spite of his voracity. But, before nutrition has become impaired so decidedly as to produce emaciation, certain symptoms are noticed showing the uneasiness of the digestive organs; and one of the earliest of these signs is restlessness at night. The child starts out of his sleep, crying violently. His skin is hot, his belly tense, his upper lip livid and drawn up at the corners, and the griping pains from which he is suffering are shown by the violent contortions of his body, and the uneasy, jerking movements of the limbs. Even when taken up into the arms of his mother he is not pacified, but breaks out into piercing cries, which nothing is able to quiet until he becomes exhausted. Other signs of his unsuitable food consists in frequent hiccough, flatulence, sour eructations, and constipation. The sluggishness of the bowels is due to excessive secretion of mucus in the alimentary canal, excited by constantly renewed irritation of its lining membrane. The mucus being coagulated by the acid, resulting from the decomposition of starchy matters, covers the masses of food, and lines the inner surface of the bowels, so that the slippery surfaces glide over one

another, and the contents of the intestines are not properly forced along. The stools themselves consist of little round masses, remarkably firm, and of a yellowish color, exhibiting, when crushed, a cheesy appearance. They are evidently composed of curds and undigested farinaceous matter. The smell is often offensively sour, and they are accompanied by a considerable quantity of tough mucus, either covering the little lumps, or appearing in the form of strings, which have been mistaken for portions of parasitic worms.

This case of wakefulness at night is so excessively common, that in every case where this distressing symptom is complained of, inquiry should at once be made into the diet of the infant, so that, by a proper adjustment of the quality and quantity of his food to his powers of digestion, the child may be supplied with a diet which he is able completely to assimilate. When this has been done, and the bowels have been assisted by a gentle laxative to expel their undigested contents, the improvement is immediate; the child sleeps soundly and his irritability ceases at once.

It must be remembered that plumpness in an infant is no proof that his feeding is judiciously conducted. Badly fed children may be exceedingly fat, as we sometimes see in cases of commencing rickets, where the adipose tissue is in great excess, although the general nutrition of the body is by no means satisfactory.

OPIATES FOR INFANTS.

A letter from a druggist calls attention to the enormous sale of a preparation known as "soothing syrup,"

an analysis of which is alleged to detect a large percentage of morphine, and from which several cases of narcotic poisoning have been reported in medical periodicals of high authority. It is averred that not only are children proportionately less tolerant than adults of the action of opiates, but that in them the operations of these drugs are exceedingly capricious and uncertain; and hence medical writers are unanimous in impressing the utmost caution in their administration to the young. Hoffman states that opiates are dangerous to children, not only in their immediate effects, but as leading, in some instances, to "permanent mental imbecility and loss of muscular power," and warns against the popular custom of giving anodynes for slight attacks of colic or other pain. Trousseau asserts that he has frequently seen infants poisoned by a dose of wine of opium, containing not more than one-hundredth of a grain of opium. Hundreds of cases are recorded in which children, ranging in age from a few days to a year or more, have been fatally poisoned by preparations containing opiates, and thousands of older invalids are suffering the consequences of a drugged infancy. Self-indulgent parent, or unprincipled nurses, may quiet fretful children with plain paregoric or disguised carminatives and soothing syrups, but the desired end is purchased at a fearful risk.

Whatever you do to your babies avoid these nostrums, by whatever name they may be called, as you would the plague. The whole race of cordials, soothing syrups and the like, owe their potency to opium or its more concentrated preparation, morphine; and are nothing less than rank poisons to their little victims. Suppose a child is fretful, so are its parents often enough; yet no one gives them an opiate and packs them off to bed. The human

frame is, at all ages, a delicate piece of machinery, but vastly more delicate in infancy than later. What then are we to think of the good sense or love of a mother who will ignorantly, or to gratify her selfish desire for quiet, tamper with its workings with downright poisons. The highest skill and best judgment of the physician are needed to estimate correctly the diseases of childhood; let others, then, not dare attempt the task he often finds too difficult. The less medicine a child takes, the better; and none should ever be given it except by competent advice. If babies are "worth raising," they are worth a little trouble; and if they cry, remember it is their only way of expressing their feelings, and it is much better to investigate the cause of the cry than to stop it by opiates. The latter process too much resembles the fascinating but ruinous performance of renewing a note; the day of reckoning is sure to come, with heavy arrears of interest.

An eminent physician says, that after twenty-five years' experience, he is satisfied that the practice of drugging children with soothing syrup and other preparations containing the principle of opium, is very destructive to the nervous system, and almost sure to beget a taste for alcohol and opium in after life. Mothers who are in the habit either of quieting crying babies with drugs or permitting nurses to do so, will act the part of wisdom if they act upon the hint given by this eminent physician. The appetite for stimulants and opiates which ruins many a man and women, is doubtless in many instances, first created in the years of infancy; and it is a lamentable fact that the origin of an appetite for such things often antedates the period of infancy. Intemperate fathers and mothers have much to answer for in that respect.

There are mothers, as well as nurses and servants, who habitually "dose" children to make them sleep, while they are "having a good time." Oh, the evil of these soothing syrups! They make idiots, imbeciles, or permanent invalids of thousands of these poor little victims.

A correspondent of the Medical Gazette, who is a practising physician, says he was called to see an infant that was in a dying condition, apparently from the effects of a narcotic poison, and he was assured that it had taken no medicine but "soothing syrup." The doctor took the bottle and had some of the syrup analyzed by a skillful chemist, and the analysis showed that each ounce of the stuff contained nearly one grain of morphine. A dose for an infant three months old, as prescribed by printed directions contained an amount of morphine equal to ten drops of laudanum. This is ordered to be given to the child every two hours in certain cases, and double the quantity to a child six months old. As children are very susceptible to the influence of opium, of which morphine is the active principle, four drops of laudanum having been known to kill an infant of nine months, and as the manufacturers of Soothing Syrup sell annually one hundred thousand two ounce bottles in the State of New York, the reader can form some idea of the number of babies that are soothed to perpetual sleep by this nostrum. Mothers had better fall back on catnip tea.

The American Journal of Pharmacy says that 150,000 infants are killed every year by the opium contained in the various kinds of soothing syrup which they are allowed, or rather forced to drink.

FOOD FOR INFANTS AND CHILDREN.

There can be no doubt that it was intended that every infant should have the milk of its own mother to nourish it; but sometimes this cannot be had, and then we are compelled to use another kind. Whenever infants are fed with milk, it should always be of the purest kind, and drawn each morning and evening from the cow. When this can be had, it should not be given until it is made more like human milk, by adding a little loaf sugar to it, and about one-third or one-fourth of water. The water should be hot, and the sugar dissolved in it; then slowly pour it into the milk, and some allow it to simmer just a little over the fire. If you scorch it in the least, throw it out. This is the way you do in the morning with the fresh milk, which is to last until evening; and at night you must do so again with the evening's milk, which is to last until morning. A very good vessel to keep the prepared milk in is a stone bottle, such as mead has come in, which should be put into the best order with soap and plenty of hot water. It is better than a tin can, and cost but a few pennies. If you do not know that the cow's milk is of full strength—and you will find very little that is, in a large city—it may be better if you add no water at all, at least, no more than enough to dissolve the sugar.

What is better than the ordinary milk, such as we get in the stores or out of wagons, is the milk of the common goat; it resembles human milk more than does that of the cow, so much so, that it requires no sugar and but little water. Many physicians, who have seen both kinds used, have learned to prefer the milk of the goat to that

of the cow. When brought home fresh in the morning or evening, it should be heated to a gentle simmer, cooled and then put away into the stone bottle, closely corked with a nice, clean cork, and kept in a cool, dark cellar.

When the infant is to be fed, do it in this way: have a cup and spoon, which should never be used for any other purpose whatever; scald them in hot water, and then pour into the cup as much of the prepared milk as you think the infant should use at once. If it uses a bottle instead of a cup, you should be very careful that it has been thoroughly cleansed and scalded, especially about the neck and nipple. After the wants of the child have been satisfied, what is left in the cup or bottle should be thrown out, especially during the hot weather, and milk fresh from the stone vessel used the next time. The bottle, or cup and spoon, should now be washed in hot water, then scalded and allowed to stand awhile in the sun. If the infant soon needs more food, have another cup and spoon which can be used, and, after they are used, go through the same trouble again with them—if you call it trouble. If you do not give everything this care, the infant may become ill, and you will have a great deal more of a different kind of trouble, and run the risk of losing the little one besides.

If possible, get the milk fresh every morning and evening. If at any time you find that the "child's stomach turns," as the saying is, after taking the milk, you may be quite sure that the trouble is want of neatness, which "turned" the milk a little before the child swallowed it. A trifling thing about the milk, which the mother's sight or taste cannot detect, may not only make the infant sick, but disturb its health for several days. If the vomiting continues, take a tablespoonful of lime-

water and add it to a tablespoonful of cold water, and give it to the infant as a drink, between the times of nursing. If the vomiting still continues, take the child to some physician, and ask him where the trouble is.

Dr. Gardner, in *The Popular Science Monthly*, suggests that young children should be fed on the milk of a farrow cow, since it has not been deprived of its essential ingredients to nourish the year's calf. "If any one questions the effect of double attempt at nutrition, let him compare the milk in ordinary use with that of the farrow cow. The latter is small in quantity, thick, redundant in cream, of a very high flavor. This is the milk destined to strengthen the bones and invigorate the energies of the growing offspring. It is such milk as this, undrained of its essential elements, that the child demands from its mother."

It is difficult in a city or village to get the unadulterated milk of one healthy, pure-blooded cow, which is so desirable for children raised on the bottle. In such circumstances we have tried condensed milk, with results entirely satisfactory. For ladies traveling with young children we think it better than a change of milk with every change of place. Milk, like fruit, may be carried and kept a long time, but for this it must be scalded, and that sometimes makes it disagree with babies.

Mothers who are not able to nurse their babies find it almost impossible to keep the milk they are compelled to use so perfectly sweet as not to injure their little ones. Ice, if it can be had, does not wholly answer, even if its excessive cold does not change the character of the milk. A few years since the writer of this, while in a Southern state, recommended the following plan to a mother: Mix your babe's food, milk with its due proportion of sugar,

and place the pitcher holding it in a deep plate—a soup-plate or pie-dish will do—and fill the plate with cold water. Take a piece of thin muslin, large enough to cover the whole pitcher and reach down all sides into the water. Have no cover on the pitcher, wet the cloth and cover the pitcher with it; put its ends into the water, and set the whole in a place where a draught of air will pass over it. The mother tried the plan, and during an exceedingly hot Summer, through the most sultry days and nights of a long season, the milk never turned at all. The *rationale* of the thing is easy. The milk is not confined in a close vessel, or in danger of being tainted by nearness to other, perhaps not wholesome food; the thin gauze protects it, yet leaves it open; the draught of air keeps the temperature down by the constant evaporation, while the water is constantly sucked up by the cloth, acting like a wick in a lamp to supply the moisture.

Dr. Pontes, in Paris, made a study about the origin of rickets, and found that the fault is in mothers not fulfilling their sacred obligations of nursing their infants with all the milk they can produce. This is the only food which agrees with the digestive organs of children during the first months of their existence, and life is often impossible when it is not given or when the supply is in deficient quantities; and the ignorance of this fact is the chief cause of the enormous mortality during the first year of infantile life. If milk is given in such quantity as to keep the child just alive, it either dies later or rickets are developed, of which the sole cause is recognized to be premature weaning.

In a paper read before the British Ethnological Society, Dr. King shows that “deformity is increasing in civilized life in consequence of the deplorable fashion of nursing

children at one breast only." The child's head being thus kept "constantly inclined either to the right or to the left," the brain bulges in one way or the other, and so as the skull consolidates, develops a lopsided little wretch. And the babies thus toppled over by the head are suffered recklessly to suck their thumbs "with the index fingers placed at rest upon the nasal bones, and thus inclining the nose sidewise."

Oh! how babies often suffer for cold water! A nursing baby is given, no matter how thirsty, nothing but milk. The little lips are dry and cracked, and the little tongue so parched it can scarcely nurse, and yet it has nothing but milk to assuage its craving thirst. Try it yourself mother, when you have a fever, and we are sure that ever after, when your darling is dying with thirst, the teaspoon and tumbler of cold water will be in constant use. Don't forget to give your baby a sip of cool water now and then. Infants often suffer great distress when sick on account of thirst, which they have no way of making known except by crying or moaning. You will often be delighted to see how quickly their trouble will cease on giving them water.

It is asserted that various experiments have proved that the saliva, as well as the pancreatic juice of newly born animals, does not possess the power of transforming starch into sugar; and it is therefore inferred, with good reason, that any substance containing starch is unfit for food for very young infants, as their physiological condition is probably similar to that of the young of carnivorous animals generally.

In regard to the feeding of infants before they cut their teeth, give them nothing but milk unless you wish them to have a hard, troublesome time teething; follow

this rule to the letter and you will not regret it I am certain.

Prof. Gunning, the Government Analyst at Amsterdam, writes: "I object to the infant's bottles in all instances where any part of them is composed of caoutchouc or india rubber, or any like material. There is nothing so ill-suited to the constitution of the human body as the material in question. When, in consequence of suction, the pores of the caoutchouc are enlarged, some portion of the milk always remains behind in them, which cannot, or at least cannot without great difficulty, be removed. This milk quickly becomes bad, and spoils the fresh milk with which it comes in contact. The caoutchouc material in question is made up of several ingredients. White zinc, or white lead, is very commonly employed, which is very poisonous. My objections are not founded exclusively upon a *priori* conclusion. In this country many fatal cases have happened among infants, which on solid grounds may be ascribed to the use of these bottles."

Dr. Ballot, a Dutch physician, prefers buttermilk to sweet milk for infants that cannot be nursed by the mother; it is boiled for a few minutes with a little wheat flour and sugar. The new diet for babies in France is buttermilk, thickened with rice meal, on which it is said they thrive and grow fat.

Oatmeal, we see by a recent article in a French medical journal, is now commended by Dujardin-Beaumetz and others as a diet for infants. They claim that it is the aliment which, in its plastic and respiratory elements, makes the nearest approach to human milk. It is also one of those which contains most iron and salts, and especially the phosphate of lime so necessary for infants.

It also has the property of preventing and arresting the diarrhoeas which are so frequent and so dangerous at this age. According to the trials made by M. Marie, infants from four to eleven months of age fed exclusively upon Scotch oatmeal and cow's milk, thrive very nearly as well as children of the same age suckled by a good nurse.

The importance of forming aright the physical habits of babies and young children cannot be exaggerated. Upon these depend in large measure the direction and success of their lives. The body is merely the casket in which the soul is placed, and that the soul may expand and develop we take the best care possible of the casket. It is generally supposed that the throne of the soul is the brain, but who doubts that the seat of royalty is often transferred to the stomach? In its proper place, as the servant of the brain, of the heart, of the whole body, the stomach is the autocrat of the body, but unless restrained within the laws made for its governance, it becomes the most formidable of tyrants.

The first care of the mother should be to see to it that no bad habits of eating are formed in her child. Now, though babies and young children need to eat more frequently than grown people, they do not need to eat all the time. Yet, if baby cries, either the bottle or the breast is the first resort, though it may be crying from over-fullness. The chief solace of children past the stage of infancy is some form of sugar—candy, ginger-snaps, or cookies—than which scarce anything, unless it were black pepper or opium, could be more injurious. It is as unwholesome for children to be hungry as it is for grown people. This constant nibbling at crackers and candies dulls the edge of appetite, diminishes the long-

ing for plain, wholesome, nutritious food, and induces in the stomach morbid cravings, which in mature years will either take the form of dyspepsia or indulgence in spiced and concentrated foods, or in some form of inebriety.

Doubtless the alcoholic habit and the opium habit are formed in many an infant by the use of beer, milk punch, and other forms of liquor on the part of the mother, and by administering to the child soothing syrups containing some preparation of opium. Dr. James Edmunds, of London, says: English babies of the present generation are never sober, from the earliest period of their existence until they have been weaned. The mothers have acquired the habit of using wine, and the soothed condition of the body after the mother has taken half a pint of beef or wine is really the first stage of drunkenness in the child. The fact is, the baby is only the infinitely more sensitive extension of the mother's system, and it is more likely than any other part of the mother's system to receive the things which are injurious that are taken through the medium of the mother's diet. Let those mothers who drink beer understand that they are distilling that beer into their children's frames; that the very mold they are to preserve for the rest of their lives is being constructed out of blood that is alcoholized—out of a condition of the system in which intoxication is the real substantial element for the first twelve months of its growth. If children thus nurtured become drunkards when adults, at whose door lies the sin? A child that from its birth has been regularly and properly fed, when it passes from infancy to childhood will have only a normal appetite; it will not hanker after cake and pie and candy and sweet-meats; nay, it will refuse them, and choose plain and wholesome food. In this normal choice

the child should be confirmed, and every temptation to indulgence in unwholesome diet be removed afar from it. Nothing more promotes sweetness of temper and uniform amiability in either children or adults than a strictly wholesome diet, and no diet in which spices, pickles, pastries, sweet-meats, condiments are frequent ingredients can be called wholesome. The fact that a child is indulged in all the candy and cake it can eat does not prove anything but that its parents are exceedingly unwise and injudicious. Many fond fathers fill their pockets with confections and nuts for the little folks at home, and think they are thus showing themselves kind and indulgent. But how much better for the children if the money thus spent was invested in books or toys, or put in the savings bank. There is no class of people so particular about their diet as brain-workers. The cookery of the food no less than its quality is to them matter of prime importance. Those parents who are anxious to develop in the best manner the intellectual capacities of their children, should take this fact into consideration. The staple articles in the diet of a brain-worker are fresh fish, broiled or baked, beefsteak, or mutton, poultry, vegetables, simple puddings, and wheat bread well done. Pies, rich puddings, and all fried meats are given over entirely to those who work with their muscles, and so can "work off" indigestible food, or to those who, having no work to do, can afford to be stupid. To neither of these classes do little children belong, and therefore their diet should be such as will assimilate most easily. Royal nurseries in Europe, and especially in England, set us an example in this respect most worthy to be followed. The young princes and princesses sit at a table spread only with such food as is suitable for them; and

doubtless for this reason are cases of sickness and death among them so exceedingly rare. Could the mothers of the present and the succeeding generation be suitably impressed with the importance of the subject so briefly touched upon, what a diminution would there be in the next fifty years of dyspeptics, or opium-eaters, or inebriates!

Queen Victoria's children were not fed with dainties, and they were raised according to the wisest judgment of the best physicians the kingdom afforded. Their food was bread, milk, cheese, butter, eggs and fresh meat. Give a little girl plenty of exercise in the open air, let her go to bed early and have abundance of sleep, and she will take her porringer of bread and milk with eagerness; and, what is more, her complexion will lose that sallowness, her cheeks will become rosy, and her eyes bright.

A young mother once expressed to us her astonishment that her dear little baby should die at three months of age, in spite of all her devotion to its welfare; her desire to make it strong having prompted her to give it—only a little meat and potatoes cut up fine. Another child a few months old is seized with violent, and, to the mother, unaccountable convulsions, having eaten nothing unusual—except a couple of thin slices of cucumber. These cases occurred not in the lowest walks of life, but in the cultivated class of the community, where marriageable young ladies are taught music, and French, and perhaps ornamental embroidery, and where, at all events, when the first call is made on their maternal love, they honestly concentrate all the fullness of their ignorant little hearts upon the care intrusted to them. Hundreds of similar instances could easily be adduced from the experience of almost any physician.

Children are killed by having poisoned candy put into their mouths. Terra alba, or white earth, costing but $1\frac{1}{4}$ cents a pound, we are told, is extensively used instead of sugar, and lozenges are produced by cheap dealers at from two to five cents a pound less than the cost of sugar at wholesale. In the manufacture of gum drops glue is used in lieu of gum arabic, the former costing but a few cents a pound, and the latter about forty cents. Verdigris, Tonka beans, Paris green, chrome yellow, Berlin blue, aniline and sublimate of mercury are all used, each of which is either a deadly poison or very injurious to the system. The common method of flavoring candies, in order to produce them economically, can be readily accounted for. Poisons are much cheaper than genuine extracts. Peach flavors in candied almonds and sugar plums are obtained from fusil oil, which is very poisonous. The bitter almond flavor is created from undiluted prussic; pineapple is procured from very rotten cheese and nitric acid. Candies are made purporting to be flavored with fruits from which no extracts can be obtained. The imitations are all poisonous. Of course there are genuine productions made by manufacturers of good repute, employing the best materials.

DRESS OF CHILDREN.

The chief cause of infantile mortality is not more the weather or foul air than ignorance and false pride of the mothers. Children are killed by the manner in which they are dressed, and by food that is given them, as much as by any other causes. Infants of the most tender age, in our changeable and rough climate, are left with bare

arms and legs and with low necked dresses. The mothers, in the same dress, would shiver and suffer with cold, and expect a fit of sickness as the result of their culpable carelessness. And yet the mothers could endure such a treatment with far less danger to health and life than their tender infants.

A moment's reflection will indicate the effects of this mode of dressing, or want of dressing, on the child. The moment the cold air strikes the bare arms and legs of the child, the blood is driven from these extremities to the internal and more vital organs of the body. The result is congestion, to a greater or less extent, of these organs. In warm weather the effect will be congestion of the bowels, causing diarrhea, dysentery, or cholera infantum. We think this mode of dressing must be reckoned as one of the most prominent causes of summer complaints, so called. In colder weather, congestion and inflammation of the lungs, congestion and inflammation of the brain, convulsions, etc., will result. At all seasons, congestion, more or less, is caused, the definite effects depending upon the constitution of the child, the weather, and various circumstances.

It is painful, extremely so, to any one who reflects upon the subject, to see children thus decked like victims for sacrifice, to gratify the insane pride of foolish mothers. Our most earnest advice to all mothers is to dress the legs and arms of their children warmly at all events. It would be infinitely less dangerous to life and health to leave their bodies uncovered, than to leave their arms and legs as bare as is the common custom.

In this age of degeneracy, children are born with enfeebled constitutions. Parents are amazed at the great mortality among infants and youth, and say, "It did not

use to be so." Children were then more healthy and vigorous, with far less care than is now bestowed upon them. Yet with all the care they now receive, they grow feeble, sicken, and die. As the result of wrong habits in parents, disease and imbecility have been transmitted to their offspring. And after their birth, they are made very much worse by careless inattention to the laws of their being. Proper management would greatly improve their physical health. But parents seldom pursue a right course toward their infant children. Their wrong course toward their children results in lessening their hold of life, and prepares them for premature death. These parents had no lack of love for their children ; but this love was misapplied. One great error with the mother in the treatment of her infant is, she deprives it very much of fresh air, that which it ought to have to make it strong. It is a practice with many mothers to cover their infants' heads while sleeping, and this too, in a warm room, which is seldom ventilated as it should be. This alone is sufficient to greatly enfeeble the action of the heart and lungs, thereby affecting the whole system. While care may be needful to protect the infant from a draught of air, or from any sudden and too great change, especial care should be taken to have the child breathe a pure invigorating atmosphere. No disagreeable odor should remain in the nursery, or about the child. Such things are more dangerous to the feeble infant than to grown persons.

Mothers have been in the habit of dressing their infants with reference to fashion instead of health. The infant wardrobe is generally prepared more for show than for convenience and comfort. Much time is spent in embroidering, and in unnecessary fancy work, to make

the garments of the little stranger beautiful. The mother often performs this work at the expense of her own health, and that of her offspring. When she should be enjoying pleasant exercise, she is often bent over work which severely taxes eyes and nerves. And it is often difficult to arouse the mother to her solemn obligations to cherish her own strength, for her own good as well as that of the child.

Show and fashion are the demon altar upon which many American women sacrifice their children. The mother places upon the little morsel of humanity the fashionable dresses which she has spent weeks in making, which are wholly unfit for its use, if health is to be regarded of any account. The garments are made extravagantly long, and in order to keep them upon the infant, its body is girted with tight bands, or waists, which hinder the free action of the heart and lungs. Infants are also compelled to bear a needless weight on account of the length of their garments, and thus clothed, they do not have free use of their muscles and limbs.

Mothers have thought it necessary to compress the bodies of their infant children to keep them in shape, as though fearful that without tight bandages, they would fall in pieces or become deformed. Do the young of dumb animals become deformed because nature is left to do her own work? Do the little lambs become deformed because they are not girted about with bands to give them shape? They are delicately and beautifully formed. Human infants are the most perfect, and yet the most helpless of all, and therefore their mothers should be instructed in regard to physical laws so as to be capable of rearing them properly. Mothers, nature has given your infants forms which need no girts or bands to per-

fect them. God has supplied them with bones and muscles sufficient for their support, and to guard nature's fine machinery within, before committing them to your care. The dress of the infant should be so arranged that its body will not be the least compressed after taking a full meal. Dressing infants in a fashionable manner, to be introduced into company for visitors to admire, is very injurious to them. Their clothing is ingeniously arranged to make the child miserably uncomfortable, and it is frequently made still more uneasy by passing from one to the other, being fondled by all.

But there is an evil greater than those already named. The infant is exposed to a vitiated air, caused by many breaths, some of which are very offensive and injurious to the strong lungs of older people. The infant lungs suffer, and become diseased by inhaling the atmosphere of a room poisoned by the tobacco user's tainted breath. Many infants are poisoned beyond remedy by sleeping in beds with their tobacco using fathers. By inhaling the poisonous tobacco effluvia, which is thrown from the lungs and pores of the skin, the system of the infant is filled with poison. While it acts upon some infants as a slow poison, and affects the brain, heart, liver and lungs, and they waste away and fade gradually, upon others, it has a more direct influence, causing spasms, fits, paralysis, and sudden death. The bereaved parents mourn the loss of their loved ones, and wonder at the mysterious providence of God which has so cruelly afflicted them, when Providence designed not the death of these infants. They died martyrs to the filthy lust for tobacco. Every exhalation of the lungs of the tobacco slave, poisons the air about him.

Infants should be kept free from everything which

would have an influence to excite the nervous system, and should, whether waking or sleeping, day or night, breathe a pure, cleanly, healthy atmosphere, free from every taint of poison.

Another great cause of mortality among infants and youth, is the custom of leaving their arms and shoulders naked. This fashion cannot be too severely censured. It has cost the life of thousands. The air, bathing the arms and limbs, and circulating about the armpits, chills these sensitive portions of the body, so near the vitals, and hinders the healthy circulation of the blood, and induces disease, especially of the lungs and brain. Those who regard the health of their children of more value than the flattery of visitors, or the admiration of strangers, will ever clothe the shoulders and arms of their tender infants. The mother's attention has been frequently called to the purple arms and hands of her child, and she has been cautioned in regard to this health-and-life-destroying practice; and the answer has always been, "I always dress my children in this manner. They get used to it. I cannot endure to see the arms of infants covered. It looks old-fashioned."

These mothers dress their delicate infants as they would not venture to dress themselves. They know that if their own arms were exposed without a covering they would shiver with chilliness. Infants of a tender age cannot endure this process of hardening without receiving injury. Some children may have at their birth so strong constitutions that they can endure such abuse without its costing them their life; yet thousands are sacrificed, and tens of thousands have the foundation laid for a short, invalid life, by the custom of bandaging and surfeiting the body with much clothing, while the

arms, which are at such distance from the seat of life, and for that cause need even more clothing than the chest and lungs, are left naked. Can mothers expect to have quiet and healthy infants, who thus treat them?

When the limbs and arms are chilled, the blood is driven from these parts to the lungs and head. The circulation is unbalanced, and nature's fine machinery does not move harmoniously. The system of the infant is deranged, and it cries and mourns because of the abuse it is compelled to suffer. The mother feeds it, thinking it must be hungry, when food only increases its suffering. Tight bands and an over-loaded stomach do not agree. It has no room to breathe. It may scream, struggle and pant for breath, and yet the mother mistrusts not the cause. She could relieve the sufferer at once, at least of tight bandages, if she understood the nature of the case. She at length becomes alarmed and thinks her child really ill, and summons a doctor, who looks gravely upon the infant for a few moments, and then deals out poisonous medicines, or something called a soothing cordial, which the mother, faithful to directions, pours down the throat of the abused infant. If it was not diseased in reality before, it is after this process. It suffers now from drug-disease, the most stubborn and incurable of all diseases. If it recovers, it must bear about more or less in its system the effects of that poisonous drug, and it is liable to spasms, heart disease, dropsy of the brain, or consumption. Some infants are not strong enough to bear even a trifle of drug poisons, and as nature rallies to meet the intruder, the vital forces of the tender infant are too severely taxed, and death ends the scene.

It is no strange sight in this age of the world, to view the mother lingering around the cradle of her suffering,

dying infant, her heart torn with anguish, as she listens to its feeble wail, and witnesses its expiring struggles. It seems mysterious to her that God should thus afflict her innocent child. But she does not think that her wrong course has brought about the sad result. She just as surely destroyed her infant's hold on life as though she had purposely given it poison. Disease never comes without a cause. The way is first prepared, and disease invited by disregarding the laws of health. God does not take pleasure in the sufferings and death of little children. He commits them to parents for them to educate physically, mentally, and morally, and train them for usefulness here, and for Heaven at last.

If the mother remains in ignorance in regard to the physical wants of her child, and, as the result, her child sickens, she need not expect that God will work a miracle to counteract her agency in making it sick. Thousands of infants have died who might have lived. They are martyrs to their parent's ignorance of the relation which food, dress, and the air they breathe, sustain to health and life. Mothers should be physicians to their own children. The time she devotes to the extra beautifying of her infant's wardrobe, she should spend in educating her mind with regard to her own physical wants, and that of her offspring. She should store her mind with useful knowledge in regard to the best course to pursue in rearing her children healthfully.

Mothers who have fretful infants, should study into the cause of their uneasiness. By so doing, they will often see that something is wrong in their management. It is often the case that the mother becomes alarmed by the symptoms of illness manifested by her child, and hurriedly summons a physician, when the infant's suffer-

ings can be relieved by taking off its tight clothing, and putting upon it garments properly loose and short, that it may use its feet and limbs. Mothers should study from cause to effect. If the child has taken cold, it is generally owing to the wrong management of the mother. If she covers its head, as well as its body, while sleeping, in a short time it will be in a perspiration, caused by labored breathing, because of the lack of pure, vital air. When she takes it from beneath the covering, it is almost sure to take cold. The arms being naked, exposes the infant to constant cold, and congestion of the lungs or brain. These exposures prepare the way for the infant to become sickly and dwarfed.

Parents are accountable in a great degree for the physical health of their children. Those children who survive the abuses of their infancy, are not out of danger in their childhood. Their parents still pursue a wrong course toward them. Their limbs, as well as their arms, are left almost naked. Mothers dress the upper part of their limbs with muslin drawers, which reach about to the knee, while the lower part of their limbs are covered with only one thickness of flannel or cotton, and their feet are dressed with thin-soled gaiter boots. The extremities are chilled, and the heart has thrown upon it double labor, to force the blood into these chilled extremities, and when the blood has performed its circuit through the body, and returned to the heart, it is not the same vigorous, warm current which left it. It has been chilled in its passage through the limbs. The heart, weakened by too great labor and poor circulation of poor blood, is then compelled to still greater exertion to throw the blood to the extremities, which are never as healthfully warm as other parts of the body. The heart fails in its

efforts, and the limbs become habitually cold; and the blood, which is chilled away from the extremities, is thrown back upon the lungs and brain, and inflammation and congestion of the lungs or the brain is the result.

God holds mothers accountable for many of the diseases their children are compelled to suffer. Mothers bow at the shrine of fashion, and sacrifice the health and lives of their children. Many mothers are ignorant of the result of improperly clothing their children. But should they not inform themselves, where so much is at stake? Is ignorance a sufficient excuse for you who possess reasoning powers? You can inform yourselves if you will, and dress your children healthfully.

Parents may give up the expectations of their children's having health, while they dress them in cloaks and furs, and load down those portions of the body with clothing where there is no call for such an amount, and then leave the extremities, that should have especial protection, almost naked. The portions of the body, close by the life springs, need less covering than the limbs which are remote from the vital organs. If the limbs and feet could have the extra coverings usually put upon the shoulders, lungs, and heart, and healthy circulation be induced to the extremities, the vital organs would act their part healthfully, with only their share of clothing.

I appeal to you, mothers; do you not feel alarmed at seeing your children pale and dwarfed, suffering with catarrh, influenza, croup, scrofula swellings appearing upon the face and neck, inflammation and congestion of lungs and brain? Have you studied from cause to effect? Have you provided for them a simple, nutritious diet, free from grease and spices? Have you not been

dictated by fashion in clothing your children? Leaving their arms and limbs insufficiently protected has been the cause of a vast amount of disease and premature deaths. There is no reason why the feet and limbs of your girls should not be, in every way, as warmly clad as those of your boys. Boys, accustomed to exercise out of doors, become inured to cold and exposure, and are actually less liable to colds when thinly clad than the girls, because the open air seems to be their natural element. Delicate girls accustom themselves to live in-doors, and in a heated atmosphere, and yet they go from the heated room out of doors with their limbs and feet seldom better protected from the cold than while remaining in a close, warm room. The air soon chills their limbs and feet, and prepares the way for disease.

Your girls should wear the waists of their dresses perfectly loose, and they should have a style of dress convenient, comfortable, and modest. In cold weather they should wear warm flannel or cotton drawers, which can be placed inside the stockings. Over these should be warm lined pants. Their dress should reach below the knee. With this style of dress, one light skirt, or at most two, is all that is necessary, and these should be buttoned to a waist. The shoes should be thick-soled and perfectly comfortable. With this style of dress, your girls will be no more in danger in the open air than your boys. And their health would be much better, were they to live more out of doors, even in winter, than to be confined to the close air of a room heated by a stove.

It is a sin in the sight of Heaven for parents to dress their children as some do. The only excuse that they can make is, it is fashion. They cannot plead modesty

to thus expose the limbs of their children with only one covering drawn tight over them. They cannot plead that it is healthful, or really attractive. Because others will continue to follow this health-and-life-destroying practice, it is no excuse for you. Because everybody around you follows a fashion which is injurious to health, it will not make your sin a whit the less, or be any guarantee for the health and life of your children.

EXERCISE FOR CHILDREN.

Proper food is not the only thing which is essential to a child's health, if not to its life. Good fresh air, abundance of light and warm clothing, are scarcely less so. The nursery, even for the smallest infant, should be the most cheerful room in the house, airy, well lighted, its walls hung with attractive pictures. For the first two or three weeks before the infant can be said to have migrated into the nursery, the light must not be too glaring. The child should be washed all over with warm or tepid water at least once daily.

In summer-time it should be taken out in fine weather once or twice a day, after it is a fortnight old, at first for a short time only; in winter time it should not be taken out until it is at least a month or six weeks old; it should be carried by the nurse until it is four or five months old; by this means it is kept warmer, and from frequent change of position, gets more exercise. After this age, however, a carriage is preferred, well supplied with wraps, and with a hot-water bottle for the feet.

The simple plan of carrying an infant is, perhaps, the best for all purposes. By the frequent change of posi-

tion there is no chance of the limbs becoming cramped, while much exercise is secured to the back; but caution is necessary here, for some infants are particularly weak in the back, and must only be held in a sitting position a very short time together. Others, again, especially when insufficiently or improperly fed, are apt to become deformed by the bending of their thigh and leg bones in the directions in which they are drawn by their own weight. These infants must be kept lying down much longer than others.

Swiss nurses carry their children on pillows, to which they are bound by suitable covering: this must considerably interfere with those kicking and jerking movements in which the youngest infants indulge, to their great delight and benefit. Babies' heads should be carefully protected from the direct rays of the sun—American babies at least. We have seen the babies of Eastern tribes calmly sleeping on their backs in baskets, one on each side of a donkey, with the mid-day sun pouring down upon their up-turned faces with a force which would evidently kill outright or produce brain fever in a white-skinned American infant. Kafir women carry their babies in pouches behind their back; Indians, again, poise them upon one hip, where, when they are older, they hang on cross-legged, with scarcely any other support.

It is of the utmost importance to keep children warm; and the younger the child is, the more carefully must this rule be observed. Young infants have no means of keeping themselves warm, and are in this respect, as in others, wholly dependent upon those about them. It is a mistake commonly made by robust people, who say that children are made hardy by exposure to cold. Provided it be abundantly supplied with good fresh air, a

child cannot be too carefully protected against chills and draughts. An apparently trivial discomfort, namely, coldness of the feet, should always be looked for and obviated; for it often leads to much suffering, particularly from uneasiness and cramps in stomach.

Babies should learn to exercise and to feel their limbs from a very early age: a good arrangement for this purpose is to have a soft rug on which they can lie, and kick about at pleasure.

The exercise of infants is quite as essential a matter as that of older children; they cannot thrive without it. Their bodies are moreover so tender that they ought not to lie in one position too long, but should be often moved. Many unpleasant deformities result from a neglect of this. Let a baby lie only on one side for a few months, and the shape of its head will begin to be unsymmetrical; one side will be seen to be larger and more bulging than the other. Let him be taught too early to walk, and be kept at it too sedulously, and it is more than likely he will have bow legs.

Thanks to maternal nature and feelings, most babies get enough moving and a sufficient variety of it; they are tossed and rocked and trotted during a large part of their waking hours; they are played with and fondled and kissed and hugged, until one would think sometimes they must have a marvelous power of endurance. Their muscles must get developed, and if babies are like bread, improved by the kneading, the handling they get must be a great benefit to them. Very much of this is good and some of it is bad; it is easy to tell when this treatment pleases a child and in most cases this is observed; but sometimes the worrying for which infants are trotted and rocked is directly aggravated instead of allayed by

this means. When a child is cross, if rocking and shaking seem to please it and its complaint ceases, for that time and trouble it is a proper remedy, and we should say from that stand-point that it is a good thing. But when one cries in spite of the rocking or cries the harder, to continue the operation on the theory that it must be good, until from sheer exhaustion the noise is stopped, we call outright brutality; it is what no humane person would subject one of the lower animals to.

Looking at the matter from another stand-point, much of the exercise of babies we cannot approve of. Many enthusiasts have condemned all movements of the child which will give to its brain a constant shaking or swaying motion, and with some reason it is true, as the effect on the nervous system is doubtless often injurious. But there is no ground for such wholesale condemnation; in the first place, it is natural for a mother to play with and toss her child; if any mother does not feel this inclination she is an exception to the rule, and if it is not natural for the babe to receive these attentions there must be a conflict in the laws of nature; besides, all the enthusiasts in the world cannot prevent it, and there must be something of the heartless in that teaching which would withhold satisfaction from this, one of the most natural, beautiful and sweet sentiments of the human heart.

But there are certain things in the care of their little ones which mothers, if they were convinced, might and would dispense with, and one of these is rocking. We object to rocking babies or trotting them on your knee for several reasons: It does no good with a healthy child, those who never make the acquaintance of a cradle are just as well off, worry as little and are as

healthy as those who do, indeed more so; if not accustomed to it they go to sleep quite as readily when kept still and the sleep is more natural—sleep and perfect stillness must in nature be twin principles; the shaking, of which rocking is apt to give them too much, does no good to the tender and growing brain and nervous system, if it does not work its material harm. Altogether we are certain the best experience condemns the practice. We don't believe in rocking or trotting babies.

Let all who have the care of infantile humanity understand that the business of infants is to grow. To grow normally they must breathe at all times, sleep all they are inclined to, and eat regularly. They must have proper clothing and due exercise, but this is generally self-regulating. Never mistake infants for toys or playthings. Never employ them to amuse yourself or entertain company. Never exhibit them for the purpose of reflecting the inherited charms and qualities of which the parents are proud—perhaps justly. In their own good time and manner, if they are well nourished, and well rested, they will manifest all the virtues they possess without prompting.

In one of the recent *feuilletons*, writes the Medical Times and Gazette, M. Latour calls attention to the mischief which may arise from the now almost universal employment of perambulators for the transport of children. He chiefly dwells upon what happens to young infants, who, in place of resting on the nurse's arm and gradually bringing the muscular system which supports the trunk erect into use by exercise, and accustoming their senses to the perception of surrounding objects, now lie recumbent and somnolent in a state of dangerous quiescence. Woman, he believes, is thus abdicating

yet another of her functions, which, in all eyes but her own, render her attractive; and, although she may relieve herself of some fatigue, it is at the risk of the welfare of her child. "Certain I am that an *enfant equipage* is a retarded infant; it will walk later, talk later, and smile later."

We warn mothers and nurses against the too prevalent practice of drawing little children around the streets backward. It has been known to produce insanity. We make a note of it because we often meet with such instances in our walks about town.

Rough riding is by no means good for babies, and the practice of trotting them on a hard-going knee, while they are held upright on their seats, has often produced severe ruptures or worse consequences.

It is well to let children go bareheaded at their play, during such times when it is not too cold or too hot and sunny for them. Exposure of the head to the air is very grateful at proper times.

Some parents make the great mistake of keeping their children in-doors during cold weather. Such a practice is pernicious in many respects. It enfeebles the bodies of children, and renders them peculiarly liable to be attacked by colds and coughs. A child should have its feet well shod with socks and boots, its body well wrapped in warm clothing, its head and ears securely protected from the cold, and then be let loose to play in the keen, bracing, winter air. By this means its body will become robust, and its spirits be kept bright and cheerful; whereas, if a child be shut up in the house, it will become fretful and feverish, and perhaps wind up with a severe attack of illness. The coroners' inquests in London daily show that every week, in that city,

children are suffocated in bed, or under the shawls of mothers. They die, as the coroner is constantly stating, in consequence of inhaling their own breath, which is a compound of carbonic acid gas. They are, in fact, in the same situation as a person who is locked up in a room which is full of the fumes of charcoal. The children are gradually overpowered by the deleterious atmosphere, and die without a struggle, it being thought that they were in a sound sleep.

A physician of St. Louis gives it as his opinion that one of the chief causes of cholera infantum, during the summer months, originates in the bad management of children during the winter; keeping them too much confined in ill-ventilated, overheated rooms. By this treatment they become enervated. There is actually less mortality from cholera infantum in the cities of Charleston and New Orleans than in New York, Philadelphia, and St. Louis—the winters being so mild in the South that children are not kept confined in-doors so constantly, nor for so great a length of time, as they are during the winters at the North. Therefore they are able, in the former situation, to withstand even a greater heat with less mortality from this disease.

Physicians affirm that the health of many children is ruined by being too closely confined in a close and heated school-room for too many hours during the day. Little children, like little flowers, need, to achieve a healthy growth, plenty of good air, plenty of sunshine, and plenty of room. Plenty of warmth, plenty of substantial food and ripe fruits, plenty of sleep, and plenty of joyous out-door exercise, would save millions of children annually.

Nothing can be more cruel and nothing more foolish

than to place children where they must be dressed every day in fresh and fashionable clothes, and their freedom to play curtailed for the sake of appearances. What childhood needs is perfect freedom among the things of nature—freedom to romp, to make mud-pies, to leap fences, to row, to fish, to climb trees, to chase butterflies, to gather wild-flowers, to live out of doors from morning until night, and to do all those things that innocent children delight in, in cheap, strong clothes provided for the purpose. Exactly that which childhood needs, manhood and womanhood need—perfect liberty and perfect carelessness. So, whether the dweller by the sea goes inland for his summer play, or the resident of the inland city goes to the sea, he should go to some spot unvisited by those devoted to fashionable display, and pass his time in unrestricted communion with nature, and in those pursuits and amusements which, without let or hindrance, perform the office of recreation.

Great injury has often been done by not making the exercise of children regular. Boys and girls are like colts—confine them in the house a few days, and when they get out, as might be expected, they are apt to be excessive in their play; not unfrequently they run and romp so much and so long that they make themselves sick. It is like holding down the safety-valve of a steam boiler until the pressure gets so great that the valve is blown away and the boiler cracked.

It is frequently the custom, apparently for the purpose of saving time, to take young people out to walk about the close of the day, because there is not light enough to do anything in the house. Nothing can be more injudicious than this plan; for, in the first place, exercise once a day is insufficient for the young; and even sup-

posing it were enough, the air is then more loaded with moisture, colder, and proportionally more unhealthy than at any other time; and the absence of the beneficial influence of the solar light diminishes not a little its invigorating effects.

Give children an abundance of outdoor exercise, fun, and frolic; make them regular in their habits, and feed them only upon plain, nourishing food, and they will seldom complain of a lack of appetite. But keep them overtasked in school, confined closely to the house the rest of the time, frowning down every attempt at play; feed them upon rich or high-seasoned food, candies, nuts, etc., allow them to eat late in the evening, and you need not expect them to have good appetites. On the contrary, they will be pale, weak, and sickly. Don't cram them with food when they don't want or have no appetite for it—such a course is slow murder. If they have no appetites, encourage, and if need be, command them to take exercise in the open air. Don't allow them to study too much, and especially keep them from reading the exciting light literature which so much abounds in our bookstores and circulating libraries. In addition to securing exercise for the children as above, change their diet somewhat; especially if they have been eating fine flour, change to course or Graham flour.

Sickness is the most expensive thing on the face of the globe. There may be instances where it makes people or children better, but generally it makes them selfish, sad, misanthropic, nervous, mean, and miserable. The best way to make children happy and good is to keep them well.

There are some medical enthusiasts in England who think perhaps it would be wise if all small or unhealthy

children were suppressed when first born. A writer says, had this been the practice in the past we should have had neither Voltaire, Victor Hugo, Goethe, nor Sir Isaac Newton.

KEEPING CHILDREN WARM.

Half the illness and fretfulness of little children might be prevented by keeping them warm enough. They are often so unequally dressed—some parts covered to excess, and others more vital still, left almost unclothed, so that they are in constant discomfort. The child cannot tell the difficulty, and thoughtless mothers dismiss the whole subject with the general complaint of crossness. Warm under flannels and good home-made woolen stockings are a comfort beyond computation in the winter season. When worn in winter, it is common to delay putting them on until the seeds of a bad cold are sown, which may last for a season or even life. If the mother is only before-handed with her calculations for the changing seasons, this might all be prevented. In the warm season make up the woolens, if it does look unseasonable and seem as though you would never need them.

Teach the children early to knit their own stockings. They will thank you for it when they grow older. I know of a large family of boys who were taught to knit in the long winter evenings, and it never hurt them in the least. They are all stirring business men now, and look back to those bright evenings in their early home, when they knit their “stints” and “measured yarns” with the girls, as among the happiest of their lives.

Give the little girls warm knitted hoods which will

cover their heads, and thick wadded sacques to wear to school, and they will come bounding home with cheeks like red apples, and eyes sparkling with health and glee. Cover the baby's arms and waxen bosom with the brightest of woollen sacques, its cunning feet with the thickest of socks, and see if it does not rejoice your heart a thousand-fold more by its gleeful crowing, than it used to in those terrible times of croup and cold, when it went bare armed and bare shouldered.

There is a prevalent notion that children can be hardened, as it is called, or rendered insensible by exposure to the effects of weather. This is a vulgar error and a dangerous one. Those who hold it will point triumphantly, in proof of their opinion, to those rugged offspring of poverty occasionally seen, who, in spite of their nakedness, seem to defy the cold and the storm. These, however, are the few of the many that disease has left untouched; they are the hardy plants which remain in the wastes of misery unwithered and undestroyed by the neglect and pestilence which have decayed and killed most of those of kindred growth.

Life-long disease and sudden death often come to children through the inattention of the parents. A child should never be allowed to go to sleep with cold feet; the thing to be last attended to, in putting a child to bed, should be to see that the feet are perfectly dry and warm; neglect of this has often resulted in a dangerous attack of croup, diphtheria or fatal sore throat.

Always on coming from school, on entering the house from a visit or errand in rainy, muddy or thawy weather, the child's shoes should be removed, and the mother should herself ascertain if the stockings are the least damp; and if so, should require them to be taken off,

the feet held before the fire and rubbed with the hand until perfectly dry, and another pair of stockings be put on, and another pair of shoes, while the other stockings and shoes should be placed where they can be well dried, so as to be ready for future use at a moment's notice.

Warmly and fashionably dressed mothers may be seen on the street at almost any hour, leading their shivering little daughters around with hardly enough clothing on their lower extremities to protect them from sight, to say nothing of the piercing blasts. Yesterday we saw a little girl led by her mother through the street. Her little collar and muff and hat were of the warmest fur; and well she needed them, for it was bitter cold, but her legs, bare and blue, between her stockings and skirts, told a shivering tale. Who does not daily see the same thing? little, frail girls with head and shoulders bundled in unneeded furs, while from the feet to a point above the knee, the little darlings are almost naked. Of course mothers who thus dress their children are very far from intending to kill them or render them permanent invalids, but such is the probable result of their fashionable exposure.

It is true that most children have their limbs well protected, because most mothers have an intelligent regard for the health of their offspring; but there are many who are clad as we have mentioned, and to the mothers of these we address our appeal. As little girls are now dressed, their skirts are no protection against the wind or cold below the knee, and what do they have as a substitute? Linen drawers, reaching just below the knee, and there meeting the top of stockings which usually have about half the warmth possessed by men's socks.

Let us compare this armor with the clothing of boys and men, who have at least five times the power of endurance possessed by the little girl. The father of this same six-year-old girl would consider himself coldly clad, and a certain candidate for rheumatism, if his lower extremities were not protected against the winter blasts by, first, thick wool socks, reaching more than half way to the knee; second, wool drawers, reaching from the waist to the feet; third, bootlegs of double leather, reaching nearly to the knee; fourth, thick wool pantaloons, covering all else, and reaching to the foot. And yet this same father permits his delicate, blue-veined child to go out in winter with legs encased in a single thickness of linen! How would he like to walk the winter streets clad in linen pantaloons, and nothing else?

Every hour that a child sleeps is just so much investment of physical capital for years to come. Every hour after dark that a child is awake is so much capital withdrawn. Every hour that a child lives a quiet, tranquil, joyous life of such sort as kittens live on hearths, squirrels in sunshine, is so much investment in strength and steadiness in growth of the nervous system. Every hour that a child lives a life of excited brain-working, either in a school-room or in a ball-room, is just so much taken away from the reserved force which enables nerves to triumph through the sorrows, through the labors, through the diseases of later life. Every mouthful of wholesome food that a child eats, at seasonable hours, may be said to tell on every moment of his whole life, no matter how long it may be. Victor Hugo, the benevolent exile, has found out that to be well fed once in seven days, for one meal, has been enough to transform the apparent health of all the poor children in Guernsey. Who shall say that to

take once in seven days, or even once in thirty days, an unwholesome supper of chicken salad and champagne may not leave as lasting effects on the constitution of a child?

When taking a lunch one day in a quiet restaurant in the city, my attention was attracted toward a mother and daughter seated at the little table near me. The young lady had several books in her lap, and was evidently a school-girl. Her shoulders were stooped, her eyes had the appearance of being overstrained, and her whole face wore an expression of weariness and listlessness most painful to see in one so young. Their whole conversation was on the various studies she was pursuing, varied by frequent maternal anxieties respecting her health, which was evidently seriously affected. The young girl seemed peevish and restless when cautioned about overdoing. Some crowning ambition seemed to take possession of her mind—perhaps in connection with an approaching examination—and she would not listen to counsel. Her whole appearance was that of a restless, overtaxed brain-worker.

And it is pitiable to reflect how many teachers of youth we have who encourage just this sort of thing. Brilliant scholars at any sacrifice. A showy examination if the best scholar is struck down with brain fever to pay for it, or if the powers are so paralyzed that half imbecility is the result for the remainder of their lives. It is a fact for parents to see to. They are the patrons whose voice should be heard in the matter.

When a body of physicians in a large city sign a remonstrance, as was done a few years ago, against a course of training that required five hours close application at school and three at home, it is time for us to move in the

matter. A sick child should not be allowed a book except as a pastime. Never send your child to school in the morning with a headache. Send a written excuse, so his standing may be kept good, as it will be with every reasonable teacher, when kept at home by illness. Your child can never grow up *but once*. He can be educated all along through life.

THE SICK ROOM.

For this apartment, especially in winter, the sunniest room in the house should be selected. There is life and healing in the solar ray, even if its light, which is only a part of the ray, is quite excluded. We all feel instantly, on entering a room on which the sunlight never directly falls, a chill and an absence of something essential to cheer and brightness. Observation shows that in hospitals more patients die in the shady than in the sunny wards, and in cities disease is more fatal on the shady side of the street than on its opposite.

Next in importance to sunshine in the sick room is ventilation. If well people need fresh air, much more do they that are sick. A free circulation of air must be provided without endangering at all the safety of the patient. In cool weather an open stove (if possible, a soapstone stove), with a wood fire, is perhaps as effective and pleasant a method as any other of securing this.

A room can be very well ventilated in the hotter nights, by lighting a candle and placing it on the hearth in the fire-place; this causes a draught upwards, which is promoted by the fresh air coming in at an open window or door. In the winter, a fire should be always burning

in the grate or fire-place, more necessary at night than in the daytime; it not only keeps the air of the room pure and good, but prevents the room getting too cool, thus endangering pneumonia or lung fever, in proportion as the invalid is debilitated.

The ventilation of the sick room should be carefully attended to. If it is important that in health we breathe pure air, much more do we need it when sick. The patient should be so placed that abundance of this vital element be introduced without producing draughts of air across the bed. Everything that can vitiate the atmosphere of the sick room should be promptly removed, and the utmost cleanliness be rigidly observed. When every function of the body performs its proper office, health is the result; when one or more of the outlets of the body for excrementitious matter becomes obstructed, disease follows and lasts till due harmony is restored. Reflection on this thought will convince any one that cleanliness as to air and surroundings is an efficient ally in bringing back health.

The aspect of the room should be inviting and pleasant. If the walls are naked, bring the pictures from that shut-up room, the parlor or the guest-chamber, and hang them up where the patient can enjoy them. Set a rose or a geranium in the window. If plants are unhealthy, the air of green-houses would be different from the outer air, which is not the case. For the sake of the nurse, we would have the sick room on the first floor, to save the inconvenience and fatigue of continual running up and down stairs; for the sake of the patient, we would have it on the second floor, which is usually more quiet and more thoroughly warmed than the first. If it is on the second floor, let every convenience be provided that

can save steps—a broom, a dustpan, poker, tongs, by all means an earth closet, and everything else that is likely to come into frequent requisition—so that everything necessary to be done can be attended to with the utmost facility. It is the want of little conveniences at hand that renders nursing in private families so fatiguing.

The utmost tidiness and cleanliness should be secured in the sick room. The senses of the patient, rendered acute by disease, make disorder and dirt ten-fold more trying than they are in health. Every soiled dish or cloth should be at once removed from the room, and no accumulations of anything disagreeable be permitted. We heard a young gentleman of refinement and culture say once that he should have married such a young lady if her brother's sick room, in which she was nurse, had not been so untidy. Not, however, from interested motives, should the nurse abhor untidiness, but because it is in itself abhorrent. "Cleanliness is next to godliness."

Well aired bedding is essential to the comfort of the patient. This can be secured with a little management. The patient may be removed to an easy chair or a lounge, and the bedding be thoroughly shaken out of doors, if the weather is fair, or in a room with the windows opened, if the weather is foul; then warmed by the fire and put upon the bed. None but the sick are fully alive to the blessedness of clean sheets. How much of disease is only the choking in one form or another of the natural outlets of the body!

The best bed is no doubt a hair mattress, but as this is so expensive, I shall merely say if you have one use it, but unless you are obliged, do not use one made of feathers. It is too soft, and the patient falls into holes, so that in case of wounds or burns, you cannot get at

them properly. Besides, if the feathers get wet, you cannot put them right again. Good clean straw or chaff, well and evenly packed in, is far better. It costs much less to begin with, it is more comfortable, and very much superior in point of health, and has this great advantage, that in case of being spoiled it can be emptied, the cover washed and refilled without loss of time and at a very trifling expense.

It is a disadvantage to have the bed too wide. If the patient be lying in the middle and needs help, the nurse is obliged to lift either kneeling on the bed or at arm's length, a position which takes away all her strength and causes a very painful strain on her muscles.

When you want to change the bed clothes, and the patient cannot get up, proceed in this way: roll the clothes to be changed tightly in the middle, lengthwise, not across the bed; put on the clean things with half the width rolled up close to the other roll, lift the patient on to the newly made part, slip off the clothes he has just been lifted from, unroll the clean ones, and it is finished without any difficulty.

If you have time, before you put the patient to bed, scour the floor right well, and wash it with hot water with a few cents' worth of chloride of lime mixed with it; or if you cannot get this, use a good-sized piece of quicklime, and rub well up into the cracks and corners. Do not be anxious to remove the whole of the lime. If you leave a little sticking in the crevices and pores of the wood it will prevent insects, give a clean, sweet smell to the place, and help to keep away infection. Now dry it thoroughly, and the room is ready for the invalid.

Two narrow beds (iron beadsteads), with fresh hair or straw mattresses, are the best. These beds are easily

moved, and thus the patient will not be compelled to look constantly at the same cracks in the wall, or count the same three spots in the corner. You can move him now into a shaded corner, now to the western window, to see the sun go down, again in front of the fire, that he may look at its cheerful blaze, and anon into the most secluded corner, that he may rest and sleep. All this is an immense gain, and is sure not only to comfort the prisoner, but to shorten his sickness.

No matter what the malady may be, there is more or less fever, and, in every possible case, the emanations from the skin render the bed foul through and through. All the emanations from our bodies are foul, and should be got rid of as soon as possible. The best way to manage it is to have two beds, and lift the patient from one to the other. When the bed which has been in use from four to six hours has been released, the mattress and blankets should be put where they can be thoroughly aired, and, if practicable, sunned. This will not only shorten and mitigate the graver stages of the malady, but it will greatly hasten the convalescence.

The comfort of the patient in many cases is greatly increased by bathing. A cloth wrung from tepid saleratus or soda water may be passed over the body under the bed-clothes, and, if followed by a dry towel, there is little danger that the patient will take cold.

The glare of the bright light at night tends to keep an invalid from sleeping; and yet, in many cases, it is not desirable to be in total darkness. If there must be light in the room all night, by all means use tapers. A box of these, costing ten cents, can be bought at the apothecary's, and will last a good many weeks. Each box contains a tiny socket or circle of tin with three sharp points,

each holding a bit of cork; into this socket sets a button-mold a quarter of an inch in diameter, with a hole in the middle, in which is inserted a bit of waxed wicking. The whole affair, not larger in circumference than a walnut, floats on the surface of a cup or tumbler full of lard oil. It gives a very soft and pleasant light, and is perfectly safe. Kerosene lamps cannot be turned down without filling the room with unconsumed products of combustion, which are very unwholesome; candles and oil lamps are apt to smoke. The taper is economical, pleasant, and safe. We have been thus circumstantial in describing this little contrivance so that those at a distance from drug stores can make it for themselves. In the nursery it is invaluable. An outlay of 33 cents will keep a light in the sick-room for months. If a burning candle has common salt put on the melted part of the candle, until it reaches the black part of the wick, it will not only cause the candles to burn very slow, but make it give a dim, mild and mellow light, proving very agreeable to the invalid.

The management of lights in a sick room is a matter of great importance. In cases of fever, sun-stroke, severe headache, and nervous attacks, the windows should be darkened and the light very much subdued. And yet if the patient is conscious, it is well to have light enough to reveal all objects with distinctness, that no marked change in external things invite the thought of the sick one to his own condition. Self-forgetfulness in an invalid hastens speedy recovery.

As all the senses except taste are rendered acute by physical derangement, the invalid is, of necessity, far more solicitous about little things than he is when in health. Trifles that in a normal condition would scarce

affect him at all, are sufficient when he is prostrated by disease, or languishing in the early stages of convalescence, to move him to rapture or to wrath. A wrinkle in the sheet under him, a picture on the wall unevenly hung, a blemish in the ceiling, a creaking hinge, a rattling window, a slamming door, often give the sick man more real annoyance than a serious misfortune would if he were well. The skillful nurse will anticipate and prevent as far as possible every little fret from such causes.

The diet must, of course, be prescribed by the physician, but the style in which it is presented to the patient the nurse is responsible for. Let the linen be snowy, the china the best the house affords, and all the accessories tasteful and inviting. Food carelessly dished, though well compounded; a tarnished spoon, a rusty knife, a cloudy glass, will take away one's appetite. The nurse should take charge of the visitors and banish all who are disagreeable, tiresome, prying, and impertinent. Persons of good sense will keep out of a sick room if neither by their presence nor their kindly offices they can minister to the recovery or well-being of the patient. It is bad enough when one is well to be bored by the owners of empty, curious heads that produce rattling, meaningless chatter, but when one is sick these become intolerable.

As good a motto as can be adopted by those who minister in the sick room is one of Charles Reade's: "Put yourself in his place." This may render them patient, thoughtful, kind, tender, and assiduous. To all of us come, sooner or later, pain and languishing, when we, too, need the gracious offices of loving attention, the cup of cold water held to feverish lips, the healthful hand on

the aching head, and the healing presence of a genial and wholesome nature. We should give all these when we can, and trust that we shall have the same in time of need.

A bouquet, a pleasant picture, a beguiling book, an inviting delicacy for the appetite, these relieve the tedium of the sick room and enliven its fatiguing monotony. Those who wish to impart cheer without weariness to the invalid, can by these little tokens of remembrance do more sometimes to charm the long hours of pain than by their personal presence. We frequently enter a room which for years was the abode of a suffering young lady, and which she quitted for that world whose inhabitants are never sick. The walls are covered with pictures of every kind, little gems of landscapes, gorgeous bits of coloring of birds and flowers, faces of friends, set in frames of every pattern and variety. A Maryland yellow-throat perches on the frame of an exquisite flower-piece; many a bright-hued butterfly clings to the cords by which the pictures are hung. Little vases of antique and unusual shape adorn the center-table and the mantle-piece, and the eye is continually delighted as it passes over these testimonials of taste on the part of the donors and their affection for the hapless sufferer. It is in the power of the mother, the wife, the sister

"To make long hours of pain
Sweet to remember through their love and care,"

and thus transform what seems affection into sources of lasting and delightful remembrance.

A sick room is no place for curiosity. If no good word can be said, or kind services can be rendered in a sick or dying room, it is the last place to which one should go as a mere spectator. Every new face, the

tread of every uncalled for footstep, the demands upon the air for breath, but the breathing of such as must be in attendance, is an injury in sickness, and especially when debility is great. Nine out of ten feel as if it was an act of rude neglect, if they were not invited into a sick room, and a direct insult if they are told that they must not go. Some persons go into a sick room, and sit hour after hour with eyes fixed on the sick person, occasionally whispering to some equally indiscreet one that may chance to be nigh. This is absolutely intolerable. Others will hang about the door and peep at the sufferer, as they would steal a look at some show. This, too, is intolerable. Another practice when the patient is very sick, is that of feeling the pulse, looking at the finger nails, examining the feet, with sundry other acts, all of which are accompanied with a very wise look, a sign, and a whisper. All this, too, is intolerable.

A sad mistake, common in a dying chamber, is to suppose that the dying person has lost perception and sensibility, because unable to speak. So far from this being the case, it is believed that the perceptions are more keen and delicate than when in health. Always let it be remembered, in a dying room, that the departing friend may hear all, and see all, when the persons present will little suspect it. How important that everything in a dying room should be made what it ought to be, for the salvation and quiet of one who is being broken away from all dear on earth, and approaching all that is serious in eternity. The sacredness of the scene should be disturbed with great care and caution.

One word more in regard to a sick room. A very great mistake is made in the length of prayers, and loud and excited speaking in prayers in the sick room. This

is an error too common, and often the occasion of great suffering to the sick and dying.

From the start, make the sick room light and cheery. Keep it very quiet, but without any *apparent* effort; keep the ropes and pulleys out of sight. The suppressed "hush, hush," every time a child comes and goes, is likely to make the patient fancy herself a great deal worse than she is. Let in plenty of pure fresh air at least twice every day, and if the weather is warm, leave a window up constantly. Do not talk much with the patient, and above all things, bar the door on meddlesome, gossiping neighbors, who come in and sit and talk by the hour, until the poor tired brain is half distracted. Too many can testify to the truth of this, from the depths of their own experience. Sometimes the effort to simply say "Good morning," or to reply to the question, "How do you do to-day?" seems to tax to the very utmost all the powers of endurance. One such tiresome visit puts the patient a long way back.

Keep the room cheerful. Refrain from asking too many questions about symptoms; keeping the mind always fixed upon them is sure to aggravate them. True sympathy is always dear to the heart, but always talking over difficulties, magnifies mole hills into mountains. Especially is this cheerfulness needed in those complaints which require long patience. The more the sufferer can be led to look beyond and outside of himself, the better chance of his early recovery, and the better will he be able to endure his afflictions.

Professional nurses are so few in number, even in our cities, that it is quite necessary that all of us should be able to take our places, when called upon, beside the sick bed, and know how to do so acceptably. A cheer-

ful, sunny temper, and a pleasant voice are inestimable qualities in a nurse. The patient, however hopeful by nature, is liable to depression on account of his disease, and needs first of all to read in the face and hear in the voice of his attendant only signs of comfort and encouragement. However dangerous his illness, nothing in the manner of the nurse should betray alarm or discouragement. Once, at the very verge of death, we were kept alive by the placid smile on the face of an attendant, and by the reply, in a careless tone, to a mute inquiry, "Oh, yes, you're coming round all right; pretty sick, but nothing to be frightened about."

The nurse shall be "vigilant, prompt, firm, obedient, self-possessed, her presence a balm, her step soft, her eye like May morning, her voice a lullaby." With these qualifications, and in a room that we have suggested, it would be almost a pleasure to be comfortably sick.

RULES FOR THE SICK ROOM.

In all serious sickness skillful nursing is as necessary as the attendance of a physician, often more necessary. Few people realize this, but many a life has been lost through the ignorance or inattention of a nurse

The sick room should be quiet, cleanly, and well aired. Label all medicines. Poisons should be placed above the reach of children. A good nurse has a steady hand, clear head and kind heart; she is not talkative or nervous. Avoid arguments with the sick. Do not tease them with business; do not sit or lean on the bed. If friends call on the patient, their stay should be very

short. The practice of visiting the sick on the Sabbath is a very poor one; that day often thus becomes the most trying and fatiguing of all of them. As a general rule do not go into the sick room unless you go to help and not to talk. Do not deceive the sick; deceit breeds suspicion; they will worry lest you are "keeping something from them." To persuade the dying that they will recover is treason against the interests of the soul.

The four most essential things required in a sick room are, food, warmth, air, quiet.

Have scrupulous neatness and care in the appearance as well as the preparation of all food. No cooking to be done in or near the sick chamber. Sick persons never can take much food at once; they need a little often. Never leave scraps, leavings, unwashed plates, cups, or spoons in sight.

For warmth provide sufficient covering, but not unnecessary weight. Remember, clothing does not create warmth; it only keeps what the body has. Actual heat is sometimes necessary, especially for infants. This can be accomplished by passing a hot iron between the sheets, or a hot brick or bottle of hot water can be placed at the foot, or a warming-pan filled with hot water. Whenever a sick person's feet are cold, they should have something warm applied to them at once. The bed-clothing should be changed as often as possible, taking care to guard against chill or fatigue.

Ventilation is an absolute necessity. The door or window furthest from the bed is the safest to use. Avoid draughts. Placing a curtain or counterpane between the window or door and the sick person will break the current of air. If necessary, protect the patient by placing additional covering over him. Never let a

vessel which has been used remain uncovered for one moment. Remove all such vessels, and all discharges as quickly as possible; cleanse them well with scalding water.

All noise in or near a sick-room is barbarous cruelty. Ask as few questions as possible of a sick person. Nurses and attendants on the sick should wear slippers, and move about noiselessly. Have no one in the room who is not wanted. Never more than one or two visitors at a time. Never let visitors see a very sick person without the consent of the doctor. Cover all tumblers, pitchers, and cups, so that they may not absorb any thing unwholesome.

Keep the patient and all about him perfectly clean; and secure, as far as possible, pure air. The sick room should be ventilated at least once a day, or twice if it can be borne. The bed-clothes should be carried out into the open air, if it is dry; if not, into the next room; and if the patient is unable to sit up meanwhile, let their places be supplied by others.

Keep the room quiet, and in perfect order.

Let the sick person be addressed in a gentle voice, and the conversation, if any is permitted, be pleasant and cheering. The nurse and friends should express sympathy with the sufferer, but at the same time seek to inspire courage and patience to endure. No long stories should be related, as is often the case, in which the invalid is informed of numerous cases where the symptoms of the disease resembled his (or her) own, all of which is calculated to excite apprehension and create alarm in the mind of the patient.

All vials and powders should be labelled, to prevent fatal mistakes. Be especially careful at night, in giving medicine, to see that you have the right article.

Keep the skin clean by daily ablution; change the garments frequently, and rinse the mouth often.

A nurse should be pleasant, agreeable, persuasive and even tempered, with great patience to bear with the whims and unreasonable fretfulness that often appears in the sick.

Never dispute with a very sick person, nor reprove him for any seeming inconsistency. Remember that he is hardly a responsible being.

Consult your patient's wants, but consult him as little as possible. Your decision need not be very obvious and positive; you will be most decisive if no one suspects that you are so at all. It is the triumph of supremacy to become unconsciously supreme. Nowhere is this decision more blessed than in a sick room. Where it exists in its genuineness, the sufferer is never contradicted, never coerced; all little victories are assumed.

The decisive nurse is never peremptory, never loud. She is distinct, it is true—there is nothing more aggravating to a sick person than a whisper—but she is not loud. Though quiet, however, she never walks tip-toe; she never makes gestures; all is open and above-board.

She knows no diplomacy or *finesse*, and of course her shoes never creak. Her touch is steady and encouraging. She does not potter. She never looks at you sideways. You never catch her watching. She never slams the door, of course, but she never shuts it slowly, as if she were slowly cracking a nut in the hinge. She never talks behind it. She never peeps. She pokes the fire skillfully, with firm, judicious penetration. She caresses one kind of patient with genuine sympathy; she talks to another as if he were well. She is never in a hurry. She is worth her weight in gold, and has a healthy pre-

judice against physic, which, however, she knows at the right time how to conceal.

Ripe fruit absorbs oxygen in the process of decay, and gives out carbolic acid. Both the processes deteriorate the value of the air for breathing; therefore fruit should not be allowed to remain for any length of time in sitting rooms, more especially in sick chambers.

Lemons or oranges remaining any length of time in a sick room produce a very unpleasant effect upon the atmosphere. I have often observed this in the rooms of persons dying of consumption, and supposed it was the disease that tainted the air, but mature experience has taught me my mistake. Sick persons generally want lemons and oranges, and they also give a cheerful cooling look to the room, but their sickly fragrance is so unpleasant that they should be banished entirely, except as they are needed for immediate use by the patient.

NURSING THE SICK.

It is noticeable how few persons are good nurses—possessing tender and sympathetic natures which bring them into immediate help and worth in a sick room. In these modern times, when doctors are relying more upon careful attendance upon the sick man's feelings than upon the guess work of doses, this is a very important matter. The skillful nurse excels pills and globules.

It has been truly said that a sick person has a better chance of restoration to health with a bad doctor and a good nurse, than with a good doctor and a bad nurse. Nursing, in fact, intelligently understood and properly applied, will do more toward curing disease than any

system of medicine whatsoever. Now that medical science has discovered that drugs are always evils which are rarely mitigated by an occasional predominance of good, their administration should bear but a small part in the treatment of the sick, and nursing a proportionately large one.

Disease is but the effort of nature to get rid of some pernicious influence which disorders the body, perverts its functions, and inflicts it with pain. This natural process can seldom be much aided by a drug, however skillfully administered, and is sure to be greatly obstructed by a medicine given improperly. The main thing to do is to do nothing, but to leave nature to perform her own work freely. This, however, does not imply idleness on the part of the doctor or the nurse. All the vigilance and skill of both, and especially of the latter, are required to keep off what may disturb, and supply what may promote, the natural operation going on in every diseased body.

The labors of the nurse, indeed, are severe and constant. For example, repose is essential to most sick persons, as is indicated by their prostration; and to secure this what care and watchfulness are necessary! The slightest sound disturbs, and the gentlest touch ruffles it; for disease generally gives a preternatural impressibility to every sense. There are the ventilation, light, and temperature of the apartment to be regulated; the diet to be prepared, and the personal cleanliness to be attended to. There are a thousand other cares necessary in order to leave nature alone with disease, and give it a fair chance in the struggle for life or death. The nurse—though she may no longer be obliged, with watch in hand, to mark each slow division of time with a pill, a

powder, or a draught, and thus vex in vain her own patience and torture the sensibility of the prostrate sufferer—will find in other more rational duties full occupation.

The nurse, now that she has more to do with the treatment of disease than the doctor himself, should have some acquaintance with those laws of nature whose operation it becomes her duty to watch, and no woman's education can be complete without it. In order then to render every assistance to those who would be glad to know what to do if called upon—as every one is liable to be—to watch over and care for some friend, I offer the following suggestions.

Careful provision for the sick should be made in every household. Attention should be given in every family to the possible wants of its members in sickness. A sick room or nursery should be provided in which especial care has been taken to have nothing which may irritate the senses of the sick. In health we do not regard a hundred little things which are an annoyance when we are ill. A conspicuous or peculiar pattern of paper upon the walls should be particularly avoided, for strange figures or shapes are conjured up by a morbid sight and imagination, from suggestive papering. A creaking or rattling window blind, from the very monotony of its sounds and the inability of the sick man to turn from it, will produce a high state of nervousness. So also will a rustling window shade which slips in and out through a partially opened sash. Familiar noises of the active household attending to the necessary family duties should be guarded against if possible; the smell of kitchen should never enter a sick room.

Do not call these mere trifles—they are not. Do you

care to "put yourself in his place" and test their importance? I could wish you no worse misery than to be helplessly laid on a sick bed and obliged to endure some of these "trifles," as you may call them. I have known of strong minded men who have cried like babies because some one has forgotten to close the door tightly, and its chucking together in a current of air had soon become so wearisome that all self-control was gone.

Equal care should be had as to conduct in the sick room. The dress of the nurse should be so simple and plain, as not to attract attention except for its entire neatness and becoming appearance. A plain material which will not rustle when moving about the room is the best. Do not enter the room with an air suggestive of your strength and health, inducing a comparison with his weakness in the mind of the patient. Be in harmony with the condition of the sick, thereby creating a feeling of support for his feebleness. Do not sit in a rocking chair—in fact I would not have one in the room unless the patient could use it—and commence to swing yourself back and forth in it; it may annoy more than you think. Of course no one would think of wearing heavy boots or shoes in such a place. Slippers are heavy enough for the little walking which is necessary.

Learn to think for, as well as of, your charge. Be quick to notice whether what you do, or neglect to do, annoys in any manner. Do not expect to be told, but understand without any hints. Recall to mind your own experience and avoid causing any discomfort. Never contradict or enter into an argument as to the right or wrong of any whim which you may encounter. You must possess a rare tact to out-talk without irritating, for remember that reason seldom enters into the vagaries of the

sick. They want because they want, just as a child does. It is almost impossible to convince a person who in health possesses a strong mind and is used to self-judgment, that his various desires are whimsical and therefore it is of but little consequence whether they are filled or not. Some diseases seem to, and in fact do, set the mind in a greater state of activity than when in health.

The appetite is often very fickle, requiring great care and art to please it. In such cases the more simple, and therefore the more apt to be forgotten foods, will usually be most acceptable. Fancy things are likely to be stale and insipid. Do not previously inform your patient that you will have some certain thing prepared for him in such a time. Make a pleasant surprise by offering a tempting dish of something which has not been anticipated for hours. If you know what healthful dishes will please your patient, prepare them promptly without previous consultation. Observe the greatest delicacy in all this. A nurse who would taste the invalid's food, or cool it with her breath, ought not to be tolerated. Never season an invalid's food highly, and remember that melted butter is one of the most indigestible things you can offer. Cream is better than butter on toast or roasted potatoes. There is some danger of using toast too freely. It is more constipating than plain bread; and a person confined to the bed or to the room is more likely to suffer from this than one who has out-door exercise. Plain, subacid fruit, and bread or gems made of good Graham (minus a part of the bran) are the best articles of diet; but a variety can be made by using sometimes the various delicate preparations of starch, tapioca, sago, rice, etc. It is hard for a sick person to wait long for

food when hungry. Don't keep your patient waiting for anything if you can help it. Minutes seem like hours to an invalid at such times.

Fussy nurses are an abomination. They are continually making all manner of absurd propositions for the comfort of a patient, and are ever annoying the medical attendant with ostentatious questions. Almost every physician has been annoyed, to say the least, by the attempts of a nurse to cram his patients with food. "Why, doctor, she don't eat anything at all. She never can keep up long, if she don't eat something. I have given her some rice, some chicken broth, some jelly, some baked apple, and some bread and milk; but she don't seem to have one bit of appetite. What had I better prepare for her?" Nothing, we reply. Nurse lifts her hands in holy horror, and declares, privately, that it is her opinion that we are starving that patient, for nobody can "keep up" unless they eat. Now, we desire to remind all such meddlesome creatures that although food is often better than treatment, yet, a physician is supposed to know when the one or the other is applicable, and if he does not know, the patient's appetite will soon apprise him as to whether food is essential to her existence or not.

Never force a patient to eat. Food that is crammed down one's throat can do no possible good, but will just as certainly do harm. A very good rule to follow with reference to the feeding of sick folk is, never to say anything about food until it is inquired for. Then, unless the article selected would be absolutely hurtful, let the sick one have what her fancy calls for. Nine cases in ten, she will ask for just what is needed, and is suited to her case. Appetite is always the best guide to follow

when we are uncertain as to whether any particular article of food is suited to one's stomach or not. If you want it, eat it, and if your appetite is a normal one, it will most likely "agree with you." But remember not to dose sick folks with eatables; nature knows best when food is necessary, and will call for it in due time through the appetite. It is a mistaken idea that patients will improve more rapidly if they are bountifully fed. Nature always lays up a store of food in the system, better for supplying the wants of those prostrated by fevers than anything that can be offered by the stomach.

Do not rattle your newspaper, nor creak your chair, nor wear noisy shoes. Speak in gentle tones, and do not talk too much with your mouth. Do not allow your patient to talk long at a time, and let the conversation take a lively turn. Better not discuss diseases. Do your best to keep long-faced visitors away. Have no whispering in the room or just outside the door.

Never lose your patience and exhibit a feeling of irritation at any treatment or lack of appreciation of your services. When health returns you will experience a pleasure in thinking that you have contributed in restoring it.

Pay attention to the instruction given with the medicines and be sure that no mistakes occur at your hands. Familiarize yourself with the nature of the medicines which you give, and endeavor to ascertain whether they are effective. In this way you can assist the doctor, who, necessarily spending but a short time at the bed-side of his patient, must depend upon you for information as to the condition of your mutual charge.

No woman has all the womanly accomplishments who is unqualified to make her presence in the sick-room a

blessing to the sufferer. All rules for behavior toward sick or well may be summed up in the Golden Rule—do as you would be done by—but in the absence of experience it is well to have some definite directions.

You can hardly be too careful about neatness and order. The sick-room should be kept perfectly tidy. Especially should all soiled garments and utensils be removed and cleansed before a second use. The towels and napkins should be clean, and the food offered should be arranged to please the eye. If anything is asked about the curtains or table cover or rugs, straighten it at once, or the invalid will have to do it mentally over and over again. To prevent the patient from hunting out every case of bad matching in the figure of the wall paper, or wearing the mind with observation of every defect in the furniture, bring in fresh bouquets of flowers or other objects upon which the eye loves to linger. Think of this in arranging your dress. Avoid glaring colors and noisy fabrics, and put on your garments with care. The patient's bed should be kept as clean and orderly as possible. Straighten the coverings and smooth the pillows quietly, whenever they get disordered, and in making the bed at the regular periods, do it with care and thoroughness. If it is impossible to change the bed linen daily, try to have two sets and alternate their use, so as to have each set aired well when taken off at night and morning.

Let all the work of the sick-room be done unostentatiously, so that, to the patient, everything will seem to be moving along smoothly and easily. Do not question invalids when you can avoid it. Get your directions from the physician in attendance, and carry them out without criticism. If you give medicine be punctual,

and say nothing about it until you have it neatly prepared, and afterwards put cups, spoons and phials out of sight. Keep medicine beyond the reach of children.

In giving baths, be gentle but use so firm a hand that your patient will understand that you are self-possessed, and need feel no concern. In giving the patient a general sponge bath, wash only a part at a time—an arm for instance—and wipe it before proceeding further, keeping the rest of the body covered. Do not use water that is uncomfortably cool to the invalid. If the feet are cool, a warm foot bath is very comforting, and may be given to the patient in bed, by using a small, shallow tub, the sick person lying on the back with the knees bent—keeping the whole covered with a blanket; and after leaving the feet in the warm water about fifteen minutes, rub with a towel wet in cold water (to contract the relaxed pores to their natural state, and so prevent catching cold), and then wipe well with a dry towel. A jug filled with hot water and rolled up in flannel is the best foot-warmer to put in bed.

Unless in extreme cases, have the room dark and quiet, and cool at night. Look out for good ventilation, and air the mattress and bedding frequently. Let in all the sunshine you can without hurting the invalid's eyes. Be as much of a sunbeam as possible yourself, without being frivolous, and with patience and faithfulness you may be able to do a great amount of good.

When I consider the amount of human life, especially in its early stages, that is every day sacrificed by no nursing at all, or what is still worse, bad nursing, I do not fear attaching too much importance to the subject of good nursing. Unhappily this is not one of the accomplishments that can be acquired by set lessons, or a

course of instruction—it must be learned by experience and tact, in the use of such faculties and knowledge, as always ought to be brought into action by the side of a sick bed.

The acquirement of a perfect command of the nerves, and a mind so fortified as to meet all emergencies, are among the imperative requisites of a really good nurse. Who that has ever suffered a single week's illness, especially if obliged to employ watchers, has not been painfully conscious of defects in this department of duty?

It is a well known fact, that if persons are neat in their habits when in health, they become nervously sensitive on this subject when sick. Not being able to employ the hands, the mind wanders from one subject to another, till it commences a scrutiny of every portion of the room that is accessible to prying eyes—hence, the importance of having it in such order as will bear the closest inspection. Cleanliness of the bed and all things about a sick person, is not only conducive to the quiet of the mind, but in reality contributes essentially to the recovery.

At all times when the weather is suitable a free current of air should be admitted, once or twice a day; especially in the morning. This can generally be done safely, by covering the patient entirely in the bed for a few moments. The frequent changing of the air and clothes, is of the utmost importance in that dreadful scourge of children, *scarlet fever*. That is a disease, too, in which there is as much responsibility resting on the nurse as on the physician, whatever may be the Doctor's "pathic."

Any one who for a moment recalls the indescribable nausea that has been felt when some ill prepared food has been offered to her, will be particularly careful not

to offer anything disgusting to a sensitive stomach. There are so many rules and recipes for preparing nourishment for the sick, that I scarcely need mention any. There are a few things, however, that are very generally required, very simple, yet all will allow are seldom made palatable—one of which is a cup of tea.

I was in the sick room of a lady not long since, when her dinner, which consisted of tea and toast, was brought to her. "O dear," said she, "I cannot drink this tea; it makes me sick." It was luke-warm and had stood till it was insipid. I requested the liberty of invading Bridget's dominions and preparing tea for her in (as I think) the only proper way for a sick person.

Have the water boiling, and if there is a China bowl or mug in the house, use it—if not take the next best bowl or coffee cup, scald it till it is heated through, then put enough tea to give the required strength into the hot dish, pour boiling water on it, cover tight, and in three or four minutes add the cream and sugar. You will then have a cup of tea, the fragrance of which will revive the invalid. Let it be drank from the dish in which it is made.

When the lady received her tea, so different from the former cup, she remarked that she hoped Bridget saw how it was made—but alas! for the *memory* of Bridget. I will mention another thing that is very useful in almost all diseases, yet few know how it should be prepared, to make it acceptable to a weak stomach. I mean the bark of slippery elm. Not more than a pint should be prepared at a time—it should be done by cutting the bark into fine strips, about a teacupful to a pint of cold water, to which the bark readily yields its mucilage, which is all that is wanted, without imparting any of the

woody taste that is given by using hot water. In many cases, lemon juice and a little ice added to the water are not objectionable. No kind of food or drink for the sick should be made in such quantities as to grow stale before using.

Equal in importance to the preparation of nourishment and medicine, is a faculty of waiting upon the sick in a kind and proper manner, suppressing any desire to hurry the trembling patient. Having every thing done promptly and cheerfully, is a very important matter to the invalid. It is extremely trying to the weak and debilitated patient, to be obliged to wait long for one to put a cup of drink to the parched lips, or have the cup placed in the trembling hand, and no clean napkin spread to catch a chance drop that might fall.

How irksome to the convalescent, when the appetite is keen, to be obliged to wait till the family has dined before receiving his or her portion. The invalid's wants should be first supplied.

When the patient lies burning with fever, no one in health can realize how refreshing it is to have the parched skin bathed in the cool and limpid element, by a light and delicate hand. There is such a difference in the manner of performing all these little offices, that it is in vain to prescribe rules. Some persons seem to have a natural talent for nursing the sick acceptably. It is a gift that is sometimes granted to men, as well as women. I have an individual in my mind's eye, at this moment, who is a resident of a city in California, whose faculties in that line are so highly estimated, that he is frequently engaged to watch the sick at ten dollars a night—such nursing cannot often be bought even with gold. He is one of the rare individuals who can act the barber, the

clerk, or the valet, while his pleasant conversation inspires cheerfulness, and his gentle and firm manner assures hope.

The business and pursuits of men in general are adverse to a cultivation of this desirable accomplishment—but I do think it is a pity that mothers do not oftener initiate their boys into the little arts that would at times contribute much to the comfort of a family. If men would acquaint themselves a little more with the requirements of a sick-room, how often would it enable them to relieve the tired and anxious mother at the bedside of the sick and dying child. Such knowledge could do a man no harm; if never called for, so much the better—yet the want of it might cost the life of some individual dear to him as his own.

FAMILY NURSING.

No medical practitioner can fail to have been most painfully impressed with the frequency with which broken health in women of the middle classes dates from protracted attendance on sick friends; and this not from want of means, but for lack simply of persons with whom to share the burden. Like other things which are not understood, nursing is supposed to be a thing which every one understands, and accordingly, when illness comes, utterly untrained women apply themselves to it with a zeal stimulated by affection to a pitch alike disastrous to the patient and themselves. How can overweariness, which is fatal to efficiency in all other things, leave efficiency in nursing unimpaired? It is only ignorance that fancies the reckless energies of unskilled affection are more available in the sick-room than in the other

exigencies of life. Instead of diminishing disease, unwise attentions to the sick multiply it. The truly efficient nurse would never waste her strength, or (except in cases of temporary emergency) suffer it to be taxed beyond the point of greatest efficiency; and in her necessary intervals of repose would afford ample scope for the efforts of domestic affection, which under her direction would themselves be rendered doubly efficient.

The history of many and many a sad bereavement might be told briefly in this wise: The mother of a family, or some one dearly loved, is taken ill. She needs no surgical treatment, no scientific nursing, nothing (the doctor says) but ordinary care, such as any commonly intelligent woman is qualified to give—nothing, in fact, except quietness and plenty of light, nourishing food. A hired nurse would be a needless expense, and the patient would rather not have a stranger about her. Her daughters and friends could have no greater pleasure than to wait on one so good, so unselfish, so beloved; and so the matter is settled; and a very right and wise settlement it would be in many (though not in all) cases—if only the friends knew how to accomplish that which they have undertaken. But the very essence of all goodness and piety is a certain tendency to devotion and self-denial, which, when good and pious people are cut off by illness from their ordinary ways of exercising it, often manifests itself in the most unexpected and unaccountable ways. The patient, accustomed to minister to others and to spend her time in planning to spare them trouble, now employs her faculties in inventing ingenious devices for preventing her attendants from “having the trouble” of carrying out the doctor’s instructions; the unsuspecting friends fall into the trap, and the patient

dies of starvation in consequence. One of the best and truest women I ever knew, deceived her daughters for six weeks by protesting that she could not bear beef-tea (which the doctor had prescribed for her), and that it was of no use to make it, for she couldn't and wouldn't touch it. At last she was surprised into tasting it, and pronounced it delicious. And then she confessed that she had never tasted it before, and had only professed to dislike it because she supposed that it was a "troublesome thing to make." Another, a pious and most affectionate mother, was reported on several successive mornings by the friend who had charge of her during the night, to have been "free from pain, and quietly asleep for many hours." I thought it strange that if she did sleep so quietly, she should look most tired in the morning. She could only swallow a very small quantity of food at a time. The doctor had therefore ordered her never to be left more than an hour and a half without nourishment. With some difficulty I got her to confess that she had feigned sleep, although suffering great pain, to save her attendant the trouble of warming her food in the night. Both these ladies died; and in each case the doctor protested to the last that there was no real disease, and that the patient was sinking from pure exhaustion.

A person who is sick enough to need night-watchers, needs rest and quiet, and all the undisturbed repose he can get. If one or more persons are in the room reading, talking, or whispering, as is often the case, this is impossible. There should be no light burning in the room unless it be a very dim one, so placed as to be out of sight of the patient. Kerosene oil should never be used in the sick-room. The attendant should quietly sit or lie

in the same room, or, what is usually better, in an adjoining room, so as to be within call if anything is wanted. In extreme cases, the attendant can frequently step quietly to the bedside to see if the patient is doing well, but all noise and light should be carefully excluded. It is a common practice to waken patients occasionally for fear they will sleep too soundly. This should never be done. Sleep is one of the greatest needs of the sick, and there is no danger of their getting too much of it. All evacuations should be removed at once, and the air in the room kept pure and sweet by thorough ventilation.

The following recipe makes a deliciously refreshing wash in the sick room, and cools the aching head. Take of rosemary, wormwood, lavender, rue, sage and mint, a large handful each. Place in a stone jar, and turn over it one gallon of strong cider-vinegar, cover closely, and keep near the fire for four days. Then strain, and add one ounce of pounded camphor gum. Bottle and keep tightly corked. There is a French legend connected with this preparation called *vinaigre a quatre voleurs*. During the plague at Marseilles, a band of robbers plundered the dead and dying without injury to themselves. They were imprisoned, tried, and condemned to die, but were pardoned on condition of disclosing the secret whereby they could ransack houses infected with the terrible scourge. They gave the above recipe. Another mode of using it is to wash the face and hands with it before exposing one's self to any infection. It is very aromatic and refreshing in the sick-room; so if it can accomplish nothing more, it is of great value to house-keepers.

With regard to reading aloud in the sick-room, my experience, says Florence Nightingale, is that when the

sick are too ill to read to themselves, they can seldom bear to be read to. Children, eye-patients, and uneducated persons are exceptions, or where there is any mechanical difficulty in reading. People who like to be read to have generally not much the matter with them; while in fevers, or where there is much irritability of brain, the effort of listening to reading aloud has often brought on delirium. I speak with great diffidence, because there is an almost universal impression that it is sparing the sick to read aloud to them. But two things are certain :

1. If there is some matter which must be read to a sick person, do it slowly. People often think that the way to get it over with least fatigue to him is to get it over in least time. They gabble, they plunge and gallop through the reading. There never was a greater mistake. Houdin, the conjurer, says that the way to make a story seem short is to tell it slowly. So it is with reading to the sick. I have often heard a patient say to such a mistaken reader, "Don't read it to me; tell it to me." Unconsciously he is aware that this will regulate the plunging, the reading with unequal paces, slurring over one part, instead of leaving it out altogether, if it is unimportant, and mumbling another. If the reader lets his own attention wander, and then stops to read up to himself, or finds he has read the wrong bit, then it is all over with the poor patient's chance of not suffering. Very few people know how to read to the sick; very few read aloud as pleasantly even as they speak. In reading they sing, they hesitate, they stammer, they hurry, they mumble; when in speaking they do none of these things. Reading aloud to the sick ought always to be rather slow, and exceedingly distinct, but not mouth-

ing; rather monotonous, but not sing-song; rather loud, but not noisy—and, above all, not too long. Be very sure of what your patient can bear.

2. The extraordinary habit of reading to one's self in a sick-room, and reading aloud to the patient any bits which will amuse him, or more often the reader, is unaccountably thoughtless. What do you think the patient is thinking of during your gaps of non-reading? Do you think that he amuses himself upon what you have read for precisely the time it pleases you to go on reading to yourself, and that his attention is ready for something else at precisely the time it pleases you to begin reading again? Whether the person thus read to be sick or well; whether he be doing nothing or doing something else while being thus read to, the self-absorption and want of observation of the person who does it is equally difficult to understand—although very often the reader is too amiable to say how much it disturbs him.

If flies are in the room you may drive them out with a brush, but, unless something is done to render the place uninviting to them, they will return immediately. There are many weeds or plants emitting an empyreumatic odor which answer well for the purpose. Of such to be found about the country, I know none more effectual than the wild chamomile, a species of anthemis, known also as cotula, or Mayweed. The odor of the plant is not at all disagreeable, and branches of the weed when in flower, or some of the dried flowers, scattered about a room, will soon rid it of all flies. Another means, perhaps quite as efficient and certainly more easily resorted to, is to throw some powdered black pepper on a hot shovel and carry it about the room. The generation of empyreumatic vapors in the same way from others spices

will also, it is said, answer the purpose. A few drops of carbolic acid or creosote, on a cloth hung up in a room or used in the dressings, would probably be effectual, but the odor is not usually so acceptable to one's olfactories.

You know what a racket is caused, even by the most careful hand, in supplying coals to a grate or stove, and how, when the performance is undertaken by the servant, it becomes almost distracting. If you do not remember, take notice the first time you are ill, or you have a dear patient in your care, or the baby is in a quiet slumber. Let some one bring in her coal scuttle or shovel, and revive your recollection. Well, the remedy we suggest is to put the coals in little paper bags, each holding about a shovelful. These can be laid quietly on the fire, and, as the paper ignites, the coals will softly settle in place. You may fill a coal-scuttle or box with such parcels, ready for use. For a sick room, a nursery at night, or even for a library, the plan is admirable. Just try it. Besides, it is so cleanly. If you do not choose to provide yourself with paper bags, you can wrap the coals in pieces of newspaper at your leisure, and have them ready for use when occasion requires.

A great deal of annoyance is experienced both by the sick and those who care for them in consequence of the well-meant but officious kindness of friends. Long calls are invariably fatiguing to those who languish on beds of pain and often seriously derange the work of the nurse. The sympathy and aid of friends in time of need is always pleasant to receive, and where sound common sense and a delicate discernment of the form this sympathy is made to take are exercised, the results are simply delightful. It is often the case that attention to the

nurse is the truest kindness to the sick, and relishes for her appetite and real relief from some of the outside duties of the sick room will be more acceptable and effective than anything else. In cases of long and dangerous illness and of death, the ordinary routine of living in a family is quite broken up, and a loaf of good bread, a toothsome pie, a savory pudding, sent in by a friend, comes in as a real benefaction to those who are well.

If one is not prepared to take hold and help in an afflicted family, either in the sick-room or out of it, at whatever is to be done, a note expressing sympathy will be just in point, and far better than a personal assurance. If, however, the visit must be made, let it be brief and condensed, both in time and words, in the sick-room especially, and not less out of it.

If one is really anxious to help, there are many household offices she can take to her home and perform, such as cleansing and ironing clothes, parching and grinding coffee, all which will be as real aid to the sick as personal watching. In many parts of the country it is quite impossible to procure outside help; and if the neighbors are not kind, the sick must suffer. A pair of clean sheets or pillow-slips for the invalid, a pretty bouquet, a pleasant picture, and similar attentions, where it is certain they will be received, will awaken gratitude that will live long after its cause has been forgotten. Visits of condolence in case of death should be brief. It is of little use in sharp bereavement to hint at consolation. The silent pressure of the hand, the glance that speaks sympathy, the wordless utterances of submission and resignation are more potent than anything else. Job's three friends sat in silence with him seven days and seven

nights, for they saw his grief was very great. In this as in most other matters good taste and sound sense should guide practical expressions of sympathy toward both the sick and the well.

FOOD AND DRINKS FOR THE SICK.

Dr. Rush, of Philadelphia, remarked in one of his lectures that a young physician ought to spend six months in a kitchen before commencing the practice of his profession. Unquestionably, a knowledge of dietetic preparations for the sick, and of the best method of preparing them, is essential for a nurse, if not for a physician.

In giving nourishment to patients who are suffering from exhaustion, care should be taken to give it in small quantities and as frequently as possible without incurring the risk of unduly irritating the stomach. The subjoined receipts cannot fail to be of use in households where sickness exists.

Many benevolent families, which are blessed with health themselves, may have sick and poor neighbors, for whom it would be a mercy and also a privilege to prepare and send occasionally a nice dish, if they only possessed the requisite knowledge for preparing it. To such we recommend the following recipes, with the hope that when occasion offers they will not be slow to put in requisition the knowledge they afford.

Always have everything you use very sweet and clean, as the senses of taste and smell are very sensitive in sickness. Never cook articles for the sick over a smoke or blaze, as you will thus impart a smoky taste. When the

mixture is thick, stir intently to prevent burning. Be very careful, in putting in seasoning not to put in too much, as it is easy to add but not to abstract.

The nicest way to flavor without lemon or orange peel is to rub loaf sugar on the peel till oil is absorbed into it, and then use the sugar to flavor and sweeten. Herbs and spice, when boiled to flavor, should be tied in a rag, and they will not then burn on the vessel at the edge.

Farinaceous food, jellies, and meat broths are the most nutritious preparations for invalids; and such food as the patient can take without producing distress and pain in the digestive organs, is the kind which will give the most strength to the system.

People in general suppose that, by extracting and insulating what they conceive to be the nutritious principles of any alimentary substance, they are able with greater certainty and effect to nourish the body of the sick and delicate. Thus we continually hear of strong beef-tea, pure arrow-root jelly, and the like, prepared with great care for such persons. But it will surprise many to hear that a dog, fed on the strongest beef-tea alone, rapidly emaciates, and dies within a short period; and that precisely the same consequence would ensue on continuing the strongest man on the same food. It is also a fact that a dog fed on fine white bread (usually considered by far the most nutritive kind of bread) and water, both at discretion, does not live beyond the fiftieth day, and a rabbit or guinea pig, fed on the best wheat alone, dies of the symptoms of starvation, commonly within a fortnight, and sometimes much sooner. The same effects follow if they are fed on oats or barley, singly. An ass fed with rice boiled in water does not survive above a fortnight. The reason of all this is, that

diversity of food, and a certain bulk, are essential to nutrition. It follows that strong soup, beef-tea, arrow-root, animal jellies, and such articles of food, should at all times be taken with some alimentary substance, and particularly with bread.

BEEF TEA.—A most excellent food for the sick and convalescent is made of half a pound of lean beef, cut in small pieces, and soaked half an hour or more in a quart of cold water and afterwards boiled a few minutes, stirring it a little as it begins to boil. Then pour it into a bowl upon a piece of hot, well-browned toasted bread. Drink off the liquid or eat toast and all with a spoon. The only seasoning allowed is a trifle of salt, or a very slight flavor from a red-pepper pod. If there is a sense of chilliness in patient, a whole pepper-pod may be used, making the tea very fiery. It will then be a good sudorific.

2. Take one pound of beef, take off all the skin and fat and put it in a pint and a half of cold water. Let it boil five minutes, then take the beef out and cut in small pieces. Put it again in the same liquor and let it boil ten minutes longer, with a pinch of salt (and a few cloves if you please). Then pour it into a fine cloth and press all the juice from it.

3. Cut some of the lean of uncooked meat into pieces about half an inch square, put them into a bottle, wrap around the cork a piece of muslin, then stop the bottle closely and put it into a kettle of cold water. Place the kettle over the fire, and let it boil until all the essence is extracted from the beef; then pour it out and add a little salt.

4. Take a pound of fresh beef, as free as possible from fat, cut it up into very small pieces, or what is bet-

ter, shred it with a fork. Sprinkle over it a little salt, and put the meat into a stout stone bottle, such as mead or Scotch ale comes in; cork tightly, and tie the cork down with a string. The cork is usually not put in until steam begins to escape from the bottle. Stand the bottle in a vessel of cold water, which should slowly be brought up to the boiling point and kept to it for at least four hours. To prevent the bottle from breaking against the side of the vessel by the movement of the boiling water, it should be secured by a piece of cord. Strain through a piece of coarse linen; then let the liquid stand awhile in a cup, and with a spoon carefully skim off any fat which may have arisen to the surface. It may be seasoned to the taste with pepper and salt.

5. The Druggists' Circular gives an excellent formula for making beef tea, as follows: Take of lean beef, cut into shreds, one pound; water, one quart. Boil it for twenty minutes, taking off the scum as it rises. After it is cold, strain the liquor. This is more nourishing than the ordinary broths and is also very palatable.

6. Take a new tin fruit can, with a tight fitting lid. Put in it three pounds of thick, juicy, round steak, carefully trimmed of all fat, and cut in pieces the size of a hazelnut, without any water, and place the lid on tight, put it in a hot oven, let it remain three-quarters of an hour, or until it tastes cooked. If the oven is very hot it will burn on the bottom before the juice comes out, if not hot enough, the meat will all shrivel up. When baked enough, take a spoon and press every bit of juice out of the meat, while it is in the tin fruit can, throw meat away and set juice aside to cool, then skim it of all grease, heat as much as is required on top of the stove, and season with salt.

7. *New Method*.—In order to meet the daily-felt want of concentrated fluid meat food, a want not supplied by beef essence as ordinarily made, Dr. H. C. Wood has invented the following process, and found in practice that it works well: "Take a thin rump steak of beef, lay it upon a board, and with a case-knife scrape it. In this way a red pulp will be obtained, which contains pretty much everything in the steak, except the fibrous tissue. Mix this red pulp thoroughly with three times its bulk of cold water, stirring until the pulp is completely diffused. Put the whole upon a moderate fire and allow it come slowly to a boil, stirring all the time to prevent the "caking" of the pulp. In using this, do not allow the patient to strain it, but stir the settlings thoroughly into the fluid. One to three fluid ounces of this may be given at a time."

CHICKEN TEA is made by boiling any part of the chicken, and using the broth weak, with only a little salt. It is sometimes called chicken water, and is made as follows: Take half a chicken, divested of all fat, and break the bones. Add to this half a gallon of water. Boil for half an hour; strain, and season with salt.

OYSTER ESSENCE.—Take half a dozen large oysters, put them in a stew pan, with sufficient salt to render palatable; place them over the fire, and let them simmer slowly until they swell; then take them off. Strain the liquor, and serve it with dry toast or light biscuit.

NOURISHING SOUP FOR INVALIDS.—Boil two pounds lean veal and a quarter of a pound of pearl barley in a quart of water, very slowly, until it becomes the consistency of cream. Pass it through a fine sieve, and salt it to taste. Flavor it with celery seed, if the taste be liked,

or use fresh celery in season. A very small quantity of the seed will suffice. It should simmer very slowly, as otherwise the barley does not properly amalgamate with the soup. It is called barley cream, and will not keep more than twenty-four hours. Beef may be used instead of veal.

NURSERY SOUP.—To be prepared the day before using it—two pounds of scrag of mutton, or of the knuckle, put into two quarts of cold water—add two or three sliced turnips, or two spoonfuls rice, or pearl barley, or star tapioca, which ever suits the taste. Simmer slowly an hour and a half, then take out the meat, and set aside; pour the soup into a large bowl, and leave to cool till next day. In the morning skim off all the fat that has risen on the stock. An hour before needed, turn the stock into a sauce-pan, and bring it to a broil—cut the meat from the bones in fine mouthfuls. Mince very fine a small onion, a little parsley and celery. Add a bit of butter the size of a nutmeg, one tablespoonful browned flour; burn an even tablespoonful of brown sugar in an iron spoon; pour a little boiling water over it into the flour, and stir into the browned flour, then stir it into the soup, add the other articles, and boil all together twenty minutes; serve hot, with small bits of carefully toasted bread. This is called “nursery soup,” but is not to be scorned by the old folks.

TOAST SOUP FOR INVALIDS.—Take a thin slice of stale wheat bread, and toast until it is brown through; but be careful that you do not burn it. While it is still hot, spread some butter over it, but not more than will strike into the bread without leaving any on the surface. Now break it into fragments; put the pieces into a pitcher, and pour on more than half a pint of boiling water. A

little pepper and salt improves the taste; so they may be added. This drink is usually found very acceptable to sick or delicate persons, and, at the same time, quite nutritious. It was much recommended under the name of "toast soup" by the late Dr. William Darrach, and gave satisfaction wherever used.

BROTH FOR THE SICK—*By Professor Liebig.*—For one portion of broth take half a pound of freshly killed meat, (beef or chicken,) cut it in small pieces, add to it 1½ pound of distilled water, to which has been added four drops of pure chlorhydric (muriatic) acid, and half to one drachm of common salt; mix them well together. After standing an hour, the whole is strained through a conical hair sieve, such as is ordinarily used in the kitchen, allowing it to pass through without pressing or squeezing. The portion passing through first being cloudy, it is again poured through the sieve, and this process repeated until it becomes perfectly clear. Upon the residue of meat remaining in the sieve, half a pound of distilled water is poured, in small portions. In this manner about one pound of liquid (cold extract of meat) is obtained, of a red color, and pleasant meat-broth taste. It is administered to the sick, cold, by the cupful, according to their inclination. It must not be heated, as it becomes cloudy thereby, and a thick coagulum of meat albumen and hematin is deposited.

A young lady of 18 years, in my family, being ill with typhus fever, first introduced this preparation. It was called forth by the remark of my family physician, (Dr. Pfeufer,) that, in a certain stage of this disease, the greatest difficulty met with by the physician lay in incomplete digestion, a consequence of the condition of the intestines, and, besides, in the want of nutriment proper

for digestion and for the formation of blood. The common broths prepared by boiling are deficient—in fact, in all those constituents necessary for the formation of the albumen of the blood—and the yolk of eggs, often added thereto, contains very little of this material, for it has $82\frac{1}{2}$ per cent. water and fat, and only $17\frac{1}{2}$ per cent. of a substance very similar to, if not the same as the albumen of eggs; and whether this is equal in nutritious qualities to the albumen of meat is, according to the investigations of Magendie, at least doubtful. The new broth contains, besides meat-albumen, a certain quantity of hematin, and, therein, a far greater quantity of iron necessary for the formation of the blood corpuscles, and, finally, the digesting chlorhydric acid.

A great hinderance to the employment of this broth in summer is its liability to change in warm weather; it commences regularly to ferment, like sugar-water with yeast, without the usual odor. (What substance is here formed is well worthy investigation.) On account of this the meat must be extracted with perfectly cold water, and in a cool place. Ice-water and, refrigeration with ice, completely removes this difficulty. Most important of all is it that the meat be perfectly fresh, and not several days old.

This broth is now in use in the hospital and in the private practice of several of the most distinguished physicians of Munich.

I should, perhaps, have hesitated to give greater publicity to so simple a thing if a new—and to my family an especially important—case had not convinced me of the great nutritious properties of this soup, and hence arises the natural wish that its benefits may be experienced by a wider circle, and other sufferers be restored

by its beneficent effects. A young married lady, who, in consequence of an ovarian inflammation, could take no solid food, lived for two months entirely upon this broth, at the end of which period her health was perfectly restored. During this time she gained flesh and strength. Generally patients take this food without opposition only so long as they are ill; as soon as they can take other food they reject this, perhaps owing to the color and the faint meat-odor. It might in many cases be of use to color the broth brown by adding burnt sugar.

BROTH OF BEEF, MUTTON AND VEAL.—Soup or broth made of different meats, are strengthening, but should be perfectly free from fat when preferred for invalids. Take two pounds of lean beef, one pound of scrag veal, and one pound of fore quarter of mutton; put them, with ten peppercorns and a spoonful of salt, into five quarts of water, and boil slowly for five hours. Strain and set away to cool. Skim off all the fat, and if there be any left, lay a clean bit of blotting paper on the broth when a little warm, and it will absorb all the grease.

MUTTON-BROTH.—Take three pounds of the scrag-end of a fresh neck of mutton, cut it into several pieces, wash them in cold water, and put them into a stew-pan with two quarts of cold spring-water; place the stew-pan on the fire to boil; skim well, and then add a couple of turnips cut into slices, a few branches of parsley, a sprig of green thyme, and a little salt. When it has boiled gently by the side of the stove for an hour and a half, skim off the fat from the surface, and then let it be strained through a lawn sleeve into a basin, and kept for use.

CHICKEN BROTH is made by boiling chicken a good

deal, skimming very thoroughly and seasoning with salt. A little rice or pearl barley improves it, or a little parsely may be used to flavor it.

PECTORAL CHICKEN-BROTH.—Cut up a young fowl into several pieces, put in a stew-pan with three pints of spring-water, set on the stove fire to boil; skim well, and add a little salt; take two tablespoonfuls of pearl-barley, wash it in several waters, and add it to the broth, together with one ounce of marsh-mallow roots cut into shreds, for the purpose of better extracting its healing properties. The broth should then boil an hour, and be passed through a napkin into a basin, to be kept ready for use.

VEGETABLE BROTH.—Take two potatoes, one carrot, one turnip, and one onion; slice them, and boil in a quart of water for an hour, adding more water from time to time, so as to keep up the original quantity. Flavor with salt and a small portion of potherbs: strain. This is a good substitute for animal food when the last is inadmissible.

PORRIDGE FOR INVALIDS.—The yolk of two eggs, three tablespoonfuls of maizena, three of cold water, a little salt; mix well together, then add one pint of boiling water; sugar if desired.

2. Mix four tablespoonfuls of Rizena in water, then pour in a pint of boiling water or milk, and add a little salt; cook fifteen to twenty minutes; can be eaten hot or cold with milk. The foregoing, sweetened with loaf sugar, will be found very palatable and nutritious for children.

MILK PORRIDGE FOR THE SICK.—If you wish to make milk porridge for adults or teething children dangerously ill with bowel complaints, take a quantity of wheat

flour, put in a bag and boil five hours. When cold take off the hard crust from the outside and grate the quantity of flour off that you need for the porridge.

2. One pint of milk and one of water; a large tablespoonful of oat, graham, rye or corn meal, grits, farina or hominy; sugar, salt, and butter to taste; mix the meal to a smooth batter in a little cold water, and when boiling stir in carefully the batter, then the seasoning, after which add the heated milk.

3. Make thin batter with Indian meal and wheat flour, a spoonful of each, and pour into it a quart of boiling milk and water, equal portions of each. Salt it to the taste. Boil ten minutes.

FRENCH MILK PORRIDGE.—Stir some oatmeal and water together; let the mixture stand to clear, and pour off the water. Then put more water to the meal, stir it well, and let it stand till the next day. Strain through a fine sieve, and boil the water, adding milk while so doing. The proportion of water must be small. With toast, this is a good preparation for weak persons.

FOR CHILDREN OR INVALIDS.—The following is very much liked by children, and may be given to most persons in delicate health: Boil a pint of milk, and, when boiling, add as much vermicelli as will make it about the thickness of well-made gruel. It may be served plain, or, if required, it may be seasoned with a bit of cinnamon, or a little orange-flower water and sugar. The flavor may be changed to suit. It may be colored with a few drops of pure carmine for a desert.

WATER GRUEL.—To two quarts of boiling water, add one gill of Indian meal and a heaped tablespoonful of flour, made into a paste and stirred in the water. Let it boil slowly twenty minutes. Salt, sugar and nutmeg to

the taste. Oatmeal makes a fine gruel in the same way.

OATMEAL GRUEL.—Mix two tablespoonfuls of oatmeal with a little cold water; then stir it into one pint of boiling water, and let it boil twenty minutes. Add a little salt and sugar, to taste; if approved, a small quantity of wine and nutmeg may be also added.

INDIAN MEAL GRUEL.—Boil a pint of water in a saucepan; mix two spoonfuls of Indian meal in a little cold water, and stir into the boiling water; season it with salt and boil fifteen minutes; stir it frequently. Some add a cup of milk or a glass of white wine, a little sugar, and a little nutmeg. Oatmeal gruel is made in the same way, except it must be boiled twenty minutes, and is much preferable to Indian meal gruel to most tastes.

2. Let Indian corn be browned as we roast coffee, ground fine in a mill, and made into mush, gruel, or thin cakes, baked a light brown. This will be retained by the most enfeebled stomach. Parched corn, and meal boiled in skim milk, is said to cure Summer diarrhea in children.

RICE GRUEL.—Wash and thoroughly rub two tablespoonfuls of rice. Pour upon it a pint of cold water and let it boil for about two hours, filling it up with water so that the quantity may not diminish. Season it with salt. In cases of dysentery it is very useful, and then black pepper must be plentifully added to it.

GROUND RICE GRUEL.—Boil one tablespoonful of ground rice, rubbed smooth with cold water, in a pint and a half of milk, with a bit of cinnamon and lemon peel. Sweeten slightly, or season with salt.

RICE AND INDIAN MEAL GRUEL.—Make a thin paste of ground rice or Indian meal, and pour into boiling water, or boiling milk and water. Let the rice boil up

once, but the corn meal must boil half an hour. Season with salt, sugar and nutmeg. A little cream is a great improvement.

SAGO GRUEL.—Take three tablespoonfuls of sago and wash in cold water; then add one quart of boiling milk, and boil for twenty minutes. Sweeten and flavor with lemon peel.

ARROWROOT GRUEL.—Mix a desert spoonful of arrowroot with a little cold water, and pour over it one pint of boiling water, boil until it looks transparent. Add a little salt. If the patient can take milk, substitute boiling milk for water, and flavor with grated lemon peel or vanilla.

ARROWROOT AND TAPIOCA GRUELS.—Jamaica arrowroot is the best. Make a thin paste, and pour into boiling water, and flavor with sugar, salt and nutmeg. A little lemon juice improves it.

Tapioca must be soaked in twice the quantity of water over night, then add milk and water, and boil till it is soft. Flavor as above.

PAP OF BOILED FLOUR.—Tie a teacupful of flour closely in a cloth, and boil it six hours; then remove it and let it cool; then grate two tablespoonfuls of it, and mix it with a small quantity of milk, and stir the mixture into one pint of boiling milk for five minutes, and sweeten to taste with white sugar. A good diet for children in diarrhœa.

ORANGE WHEY.—Milk, one pint; the juice of an orange, with a portion of the peel. Boil the milk, then add the orange, and let it stand till coagulation takes place. Strain.

CHOCOLATE CREAM.—To a pint of boiling milk add a half a teacupful of sugar, the yolk of one egg and

two tablespoonfuls of ground cocoa. Mix and boil gently.

COFFEE MILK.—Boil a desert spoonful of ground coffee in a pint of milk for a quarter of an hour; then clear it with the white of an egg or isinglass; let it boil for a few minutes, and sweeten it according to taste.

GROUND RICE MILK.—Boil one spoonful of good rice, rubbed down smooth, with a pint and a half of milk, a little cinnamon, lemon peel, and nutmeg. Sweeten when nearly done.

STRENGTHENING JELLY—Boil in two quarts of water, one ounce of rice, one ounce of sago and one ounce of pearl barley, until reduced one-half. Strain into a mould; take a teacupful morning, noon and night. It can be sweetened and flavored to taste.

CALVES' FEET JELLY.—Take two calves' feet and add to them one gallon of water, and boil down to one quart; strain, and when cold remove all the fat; then add the whites of six or eight eggs well beaten; half a pound of loaf sugar and the juice of four lemons, and mix well. Boil for a few minutes, constantly stirring; then strain through flannel.

BREAD JELLY.—Cut a wheaten roll or loaf into slices; toast them on both sides, and boil in a quart of water, until the whole forms a jelly, adding more water if required; then strain, and flavor with one pound of white sugar, four ounces of red wine, and one ounce of cinnamon. Very nutritious. It may also be made with broth from which the fat has been skimmed, instead of water.

BISCUIT JELLY.—Take of white biscuit, crushed beneath the rolling-pin, four ounces; cold water, two quarts; soak for some hours, boil to one half, strain, evaporate to one

pint, and flavor as above. Given in weakness of the stomach, dysentery and diarrhoea.

RICE JELLY.—Take of rice three spoonfuls; boil in water, and add ten sweet and five bitter almonds, and sugar to your liking; make into an emulsion, and flavor with cinnamon or orange-flower water to your taste.

ARROWROOT JELLY.—Take of arrowroot one ounce; rub to a smooth paste with a spoonful or two of cold water; then gradually add of boiling water half a pint, stirring all the while. It may be thinned with more water, if desired, and flavored with milk, wine, sugar and spices, according to the palate of the patient.

ISINGLASS JELLY.—Isinglass, one roll. Boil in one pint of water until it is dissolved. Strain, and add one pint of sweet milk. Put it again over the fire, and let it boil up. Sweeten with loaf sugar, and grate nutmeg upon it. When properly made, it resembles custard. This forms an excellent diet for persons recovering from sickness, and is well adapted to the bowel complaints of children.

SAGO JELLY.—Take of sago, washed well, one large spoonful, and water nearly a pint. Boil them gently, stirring often till the mixture is smooth and thick; then add two spoonfuls of wine, a little nutmeg, and sweeten it to the taste. A piece of lemon peel added to it when boiling gives it a pleasant taste and flavor, and with some patients it agrees better when boiled in milk, for debility.

2. Soak sago in cold water from an hour to an hour and a half; strain, and boil in fresh water till it becomes transparent; then add sugar, clear broth, milk, prunes, or spices to flavor. One ounce of sago will make a pint of jelly. Some add wine.

TAPIOCA JELLY.—Tapioca, two tablespoonfuls; water,

one pint. Boil gently for an hour, until it assumes a jelly-like appearance; add sugar and nutmeg, with lemon-juice, to suit the taste of the patient and the nature of the case. Wine may be added.

2. First, soak, strain and boil the tapioca, as directed above for sago; then flavor with lemon juice and peel, prunes, raisins, or spices. One ounce of tapioca will make a pint of jelly. Add wine if desired.

JELLY OF IRISH MOSS.—Irish Moss, half an ounce; fresh milk, a pint and a half. Boil down to a pint. Remove any sediment by straining, and add the proper quantity of sugar and lemon-juice, or peach water, to give it an agreeable flavor.

Note.—The flavoring of any of the above named jellies may be omitted or varied, with the advice of a physician.

FARINA.—Put together one quart of milk, one tablespoonful of sugar, two tablespoonfuls of farina, and one teaspoonful of extract of almonds. Boil for twenty minutes, stirring constantly. Dip your jelly moulds into cold water, and then pour in the farina. Let it stand until it is quite cold.

2. Put one pint of milk over the fire, and when it comes to a boil, stir in two and a half tablespoonfuls of farina, and boil it for thirty minutes. Beat the whites and yolks of two eggs separately, and after the farina has cooked twenty minutes add the eggs to it, also two tablespoonfuls of sugar, and just enough essence of almonds to flavor it.

PEARL BARLEY, with water, simmered to a jelly, is a valuable food for infants. Strain all seeds, etc., before it gets cold. Mix with a due quantity of milk, or without milk if preferred, and give it warm. This is a happy medium between oatmeal and arrowroot.

PANADA.—Put into a bowl one ounce of light bread, cut it into small pieces, omitting the crust. Pour on it half a pint of boiling water, with a small piece of butter; sweeten it with white sugar, and add nutmeg to taste. In place of bread crackers may be used. The butter and nutmeg should not be used unless approved. Some add wine.

2. White bread, one ounce; ground cinnamon, one teaspoonful; water, one pint. Boil them until well mixed, and add a little sugar and nutmeg. Wine or butter may be added if desirable.

3. Set a pint of water on the stove, and add a little sugar, nutmeg and lemon. Crumb up some stale white bread, and as soon as the water boils, stir in the bread, letting it boil fast a few minutes. Add a small bit of butter if allowable.

4. Stale wheat bread, one ounce; cinnamon, one drachm; water, one pint. Put these together, cover and let stand for an hour, then beat up and boil for ten minutes, adding a little grated nutmeg and sugar. Wine may be also added if desired.

CHICKEN PANADA.—Take the white meat of the breast and of the wings of the chicken which has been either boiled or roasted; free it from the skin, and cut it into small morsels; pound these in a mortar with an equal quantity of stale bread and a sufficiency of salt, adding, little by little, either the water in which the chicken was boiled, or some beef-tea, until the whole forms a thin fluid paste; lastly, put it into a pan and boil for ten minutes, stirring all the time.

The lean part of tender beef, or a slice from a cold leg of mutton, may be prepared in exactly the same manner. This panada we regard as the most convenient of all

forms of giving animal food in a nicely graduated quantity, and it is used with great satisfaction both for adults in convalescence and for the rearing of children. It may be made of any degree of thickness—so thin that it may be given through the bottle, or so thick as to form spoon-meat.

Chicken Panada is made by pounding some of the meat of boiled chicken in a mortar, with a little broth, and also a little salt and nutmeg. Then pour in a little broth and boil it five minutes. It should be a thick broth.

CURDS.—Freshly soured and thickened milk is esteemed by the doctors very wholesome and easy of digestion. It has been customary to stir several spoonfuls of orange wine or native port into a dish of sour milk before it sets, then leave it to curdle, and eat with powdered sugar and nutmeg. It is considered a delicacy, but we should omit the wine. Families in the country may make this serviceable.

COCOA NIBS.—Pour one quart of boiling water over two ounces of cocoa nibs, boil gently for five hours, strain, and mix (when required for use) with an equal part of new milk; allow this to reach the boiling point, but not to boil, and it is ready for use. If milk disagrees with an invalid, a little cream can be substituted, as used in making tea.

COCOA POWDERS.—Roasted cocoa, two ounces, potato starch, five ounces; sugar, eight ounces, and a little vanilla. Mix two or three spoonfuls boiled in about eight fluid ounces of water; it forms a nutritious diet for the convalescent.

SAGO FOR INVALIDS.—Wash one large spoonful of sago, boil it in a little water, with a pinch of salt and one or two sticks of cinnamon, until it looks clear; then add a

pint of milk, boil all well together and sweeten with loaf sugar.

BOILED FLOUR.—Tie up as tight as possible in a linen cloth one pound of flour; and, after frequently dipping it in cold water, dredge the outside with flour till a crust is formed round it, which will prevent the water from soaking into it while boiling. Place it in water and boil it until it becomes a hard, dry mass. Two or three spoonfuls of this may be grated and prepared in the same manner as arrow-root gruel, for which it is an excellent substitute.

RICE CUSTARD.—Boil half a cupful of the best ground rice in a pint of milk until dissolved; mix it with a quart of cream; flavor to taste.

VANILLA CHOCOLATE.—To three pounds of cocoa paste, add five pounds of sugar and five and one-half drachms of vanilla. Mix together thoroughly and form into small cakes; these boiled in milk or water, afford a good article of diet for convalescent and debilitated persons.

INVALID PUDDING.—Soak one even tablespoonful of tapioca in nearly a cupful of milk for one hour, or until thoroughly softened. Add a little salt, also sugar to taste, and the yolk of an egg. Bake fifteen minutes. This is simple and will be relished.

DROPPED EGGS.—Salt some boiling water, and drop in a raw egg out of the shell, taking care not to break the yolk; take it up as soon as the white is hardened. Dip some toast in hot water and put salt or butter upon it, and lay the egg on to it.

TOAST WATER.—Very few know how to make toast water right. Toast the bread carefully to a full brown, but not in the least burnt. If not enough toasted, it will taste raw; if too much it will be bitter. Put it

while hot into cold water, and it will be almost immediately ready for use. Boiling water renders it insipid.

2. Toast slowly a thin piece of bread till quite brown and hard, but not the least black; plunge it in cold water, and cover it over an hour before used. This is very serviceable, used for weak bowels. It should be a fine brown color before drinking it.

3. Pour boiling water on to bread toasted very brown, and boil it one minute, then strain it and add a little sugar and cream.

HERB DRINKS.—Balm tea is often much relished by the sick. Sage tea is also good. Balm, sage, and sorrel, mixed with sliced lemon, and boiling water poured on, and then sweetened is a fine drink. Penny-royal makes a good drink to promote perspiration. Herb drinks must be often renewed as they grow insipid standing.

OTHER SIMPLE DRINKS.—Pour boiling water on to tamarinds, or mashed cranberries, or mashed whortleberries, then pour off the water and sweeten it. Add a little wine if allowed.

FLAXSEED TEA.—Take of flaxseed, one ounce; white sugar, one and a half ounces; lemon juice, two tablespoonfuls; boiling water, two pints. Infuse them in a pitcher some hours, and then strain off the liquor. An ounce of liquorice, shaved, may sometimes be used instead of sugar.

PECTORAL DRINK.—Take of common barley and stoned raisins, each, two ounces; liquorice-root, half-ounce; water, two quarts. Boil the water first with the barley, then add the raisins, and afterwards, near the latter end of the boiling, the liquorice. The decoction will then be fully completed, when one quart only will be left after straining.

BARLEY COFFEE.—Roast one pint of common barley in the way in which coffee is roasted. Add two large spoonfuls of this to a quart of boiling water, and cover it close for two hours.

BARLEY WATER.—Pearl Barley, two ounces; boiling water, two quarts. Boil to one-half, and strain. A little lemon juice and sugar may be added to give the beverage a pleasant flavor. To be freely taken in febrile disorders.

APPLE WATER.—Cut two large apples in slices, and pour a quart of boiling water on them. Or, pour the same amount of water on roasted apples. In two or three hours, strain, and sweeten slightly.

LEMON WATER.—Put two slices of lemon, thinly pared into a teapot, a small bit of the peel, and a bit of sugar. Pour in a pint of boiling water, and cover it close two hours.

A COOLING DRINK IN FEVERS.—Put a little sage, two sprigs of balm, and a little sorrel into a stone jug, having first washed and dried them. Peel thin a small lemon, slice it, and put it in with a small piece of the peel; then pour in three pints of boiling water. Sweeten, and cover it close.

SUGARED ORANGE.—Select the lightest colored oranges for this purpose, as they are more acidy than the dark. Peel off the rind and slice them, latitudinally or crosswise, about an eighth of an inch in thickness. Strew over them some powdered white sugar, in the proportion of a teaspoonful of sugar to each slice. Let them stand fifteen minutes. They are very palatable in fevers, as they serve to cleanse the mouth and keep it cool.

All do not know that lemons sprinkled with loaf-sugar almost completely allay feverish thirst. They are inval-

uable in the sick-room. Invalids affected with feverishness can safely consume two or three lemons a day. A lemon or two thus taken at "tea-time" is recommended as an entire substitute for the ordinary supper of summer, and will often induce a comfortable sleep through the night, and give a good appetite for breakfast.

TEA FOR THE SICK.—See page 768.

SLIPPERY ELM.—See page 768.

TO COOK BIRDS FOR CONVALESCENTS.—Lay them upon the gridiron, broil until they have a light brown color, then put them in a stew-pan, pour over hot water enough to cover them. Let them stew until tender. Season with a little fresh butter, pepper and salt. Chickens, birds and squirrels, stewed in a double kettle, are very delicate for invalids. If permitted, stuff the fowls and birds with minced oysters.

The following directions for preparing articles of food, for the sick, are distributed through the Hospital for Incurables, Philadelphia. The methods given are so excellent and reliable, that we are led to present them to our readers.

BOILED RICE.—Most people think this is something easily prepared. So it is, perhaps; but few nurses have an idea of the necessity of having it properly done—that is, cooking it until every grain becomes perfectly *softened*. If the grains are not reduced to this soft state, rice is almost certain, when swallowed, to irritate the digestive organs, and instead of soothing the parts and sustaining strength, will actually produce a diarrhœa, etc. This has been frequently noticed in hospitals.

When properly boiled until each particle becomes so softened that the *grain* cannot be detected when eaten, there are few articles of diet for the sick which can be

made more acceptable to the taste of invalids than boiled rice.

CORN STARCH.—To one tablespoonful of corn starch add enough cold water or cold milk, to make a perfectly smooth paste. Then pour this into half a pint of boiling milk and carefully boil a few minutes, stirring it all the time, and putting in a little salt. Sweeten to the taste, and add any essence or spice liked by the person who is sick. Then set aside to cool.

This, like everything else which contains milk, requires great care to prevent it from scorching, and the least of it can be observed by the person for whom prepared. For this reason a sauce-pan with thick sides is usually preferred, and the heat should always be applied to the bottom of the vessel. In stirring be cautious not to splash against the sides of the utensil more than can be helped.

ARROW-ROOT.—Take a tablespoonful of arrow-root, and mix it with cold water enough to make a paste free from lumps. Pour this slowly into half a pint of boiling water, let it simmer awhile until it becomes thick and jelly-like; sweeten to the taste, and add a little nutmeg or cinnamon. Instead of the half pint of boiling water, the same quantity of boiling milk, or half milk and half water, may be used. This will make it more nutritious.

PANADA.—Take a slice of wheat bread and break it into fragments; sprinkle over it a tablespoonful of ground cinnamon; put into a cup, pour on it a pint of boiling water, and boil a few minutes until well mixed; when some sugar, and a little grated nutmeg, must be added. If desirable, a piece of butter may be put in, and also some wine or brandy.





QT 200 H847 1878

07410900R



NLM 05050793 1

NATIONAL LIBRARY OF MEDICINE